

# AVIATION WEEK

APRIL 26, 1948

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## NEWS SIDELIGHTS

### Radar Warning Plan

Navigational Committee of the Research and Development Program, headed by American Airlines' President Ralph Dimes, has submitted a report to Defense Secretary Foran.

Still classified, the report contains recommendations for integrating military requirements for an early warning radar network with the new electronic, all-weather civil aviation program.

Integration and administration of the two programs will be a key point in the battle for the large appropriations would from Congress. Cost of the electronic aviation program has been set at over a billion dollars, while the radar network may cost even more.

### Forrestal Fails to Stop Air

Defense Secretary Forrestal made a last-minute last-ditch attempt to halt the vacillating movement in the House for a 70-Group Air Force but failed in convincing Rep. Carl Vinson to vote electronic approval, to his office for authorization on "balanced" service forces involving a 55-Group Air Force.

Vinson, sponsored for American War, what happened at the session is follows: "The Secretary expressed concern to me that a 70 Group air program would thus the country's defense out of balance. I expressed concern to the Secretary that the country's defense is now out of balance, and that a 70-Group air program would bring it into proper balance, more strategic balancing is now on first line of defense. 'The Navy' was."

Now unclear whether member of the House Armed Services Committee, Vinson served for 14 years in chambers of the Naval Affairs Committee, was defined "advised" for his continuing leadership of the Navy in "the first line of defense."

### Air Mail Rate Tiff

An attempt by AIA's Roosevelt, to secure the government subordinated "bail from the transport industry was building. Following failure the House Interstate and Foreign Commerce Committee last week, Roosevelt, assistant chief of Post Office Department expenditures for annual new service contracts, it means that the users of air mail are being subordinated and are a piling the rest of the service. It did not mean that an "airmail" rate being set, but the rate, he maintained.

### Lead-Lease Brewing

Next steps in the Truman administration's "aid war" against Russia are scheduled to be military alliances with Western European powers followed by a new version of military Lead-Lease. Aircraft shipments, under World War II supplies, will be an important part of the new Lead-Lease program. Deals will be handled like those with Turkey, Greece and China, who are now getting U. S. combat planes and parts.

Members of the House Civil Service and Post Office Committee, aiming to correct the deficit operations of the air mail service by separating subsidy from service payments to finance and by boosting the financial side, are also using that Roosevelt has put both the smallest agreement to date for an increase in the annual rate. If agreed upon, are being submitted the rest of the service to the "balanced" side.

AIA, of course, has vigorously fought an increase in the annual rate.

### Air Force Blues

Credit jammed Admiral William Leahy with major influence in scuttling the Air Force's blue uniform plans. Leahy, brought strong pressure on Congressmen when the \$10,000,000 is spent to shift the air force likely to exchange blue came up for a vote on the House floor. The admiral said such voting other service men would get in blue, even though it is several shades lighter.

### New Controls

Two sets of controls are being drafted for Congressional approval. One set is for the future, the other is to be effective at once.

Statute controls would be approved by Congress and checked for a set of "aid" emergency. These, in the form of a modified Second War Powers Act, are being drafted for Congressional approval by the National Security Resources Board. This would go into effect "at once and when."

But the restrictions that industry fears are intended to weed "non-essential production" out of the necessary strategic concerns, so that the "aid" and "aid" and "aid" and "aid" efforts will have some to give.

Last fall President Truman asked for a set of "aid" controls to stop in future. These were simple price and limited allocation measures. They have been excluded by the controls now being drafted. The new controls being considered would provide them to effect during World War II.

Priority and new controls are being considered for various commodities, and there is an increasing emphasis on new commodities that strategic materials should be put under aid management.

On economic camp, close to the military, is advancing a scheme to give aid to having and allocating of strategic materials and materials which the country would respect to any extent included in this category are copper, lead, tin, chrome, manganese, tungsten, antimony, graphite, and nickel.

### MATS Progress

Basic agreement between the Air Force and Navy regarding operations of MATS has been signed. An transport service has been revealed following service tips and study by MATS Co., headed by Gen. Laurence Kuter and his deputy, Rear Admiral John Whelan. The agreement has clear out the most serious Air Force and Navy objections and is now sliding through military should be meeting, approval at higher levels. It is expected to define, more specifically, what is required. Navy was long and act as a catalyst, allocation of funds and equipment from both services for MATS.

### Dryden's New Policy

Concept road road survey trip of the 15-man National Advisory Committee for Aeronautics and official party is mounting evidence of the committee's increasing interest in scientific practical industry design and development problems. This new policy is one of the latest features of the administration of Dr. Hugh L. Dryden. The path is in large measure along, research and technical research facilities on site to Ames, Aeronautical Laboratory, for official NACA meeting. Purpose of the tour is NACA desire to acquaint itself with current aviation industry problems, and with current development status of a variety of projects upon which to coordinate its own aeronautical research program. The subjects will include the new personnel interest of NACA in air mail and other, and new area of consequent air mail.

## NEWS DIGEST

### DOMESTIC

CAB Officials are investigating the crash of a Pan American Airways Conquest during an instrument approach to Shannon (Ireland) Airport. Thirty of the 71 passengers aboard the plane, bound from Keweenaw to New York, were killed.

A \$10 million fine for the new line Air Force workers is now before the Senate. No definite date has been set for Senate consideration of the measure.

American Federation of Labor has added an all of affiliates to do "everything legally possible" to aid the Air Line Pilots Association in its 12-week and strike against National Airlines.

Boeing Airplane Co.'s C-97 Stratofreighter set an unofficial record for military air transport planes when it flew 2,991 miles from Hickam Field, Hawaii to Fairfield-Simons Air Force Base, Calif., in 5 hr 35 min.

Thomas West Jones, Secretary and treasurer of Glenn L. Martin Co., died April 16 of a heart attack at Fredericia, Iowa. He had been associated with the company since World War I in legal counsel and was a member of the Cleveland and American Bar Association.

### FINANCIAL

Booth Airplane and Airplane Corp.'s annual meeting of stockholders scheduled for April 28, 1946, will be postponed due to bad weather.

Booth Aircraft Corp. reported net income of \$576,480 or \$1.75 per share for six months ended Mar. 31. Sales increased \$127,611.54 for the same period.

Norfolk Aircraft Corp. announced net profit for six months ended Jan. 31, 1946, of \$109,654.45 or 42 cents per share. Working capital at the end of period stood at \$1,335,000, with current ratio slightly in excess of two to one.

### FOREIGN

Swedish Air Lines (SAL) reports resumption of the maintenance employee strike which crippled the company's European operations since last November.

Elmendorf D. H. 108 turbo-propeller airplane established a new 100-km. climb-time record of 405.23 mph, breaking the former record held by the Supermarine Attacker by more than 30 mph. The craft, similar to the one in which Geoffrey D'Amboise lost his life, is powered by a D. H. Cyclone engine and is one of two now flying.

## Some Short jottings for airline operators and their crews



World Airlines in the comfort and luxury that always accompany flying South.

## What does the modern business man want...?

### Who says he's in a hurry?

As an travel business man and more a traveler after the popular press magazine now makes more and more for reduced times between various continents. In order to stress the importance of these facts the press has had also to publish someone who really wanted to know about the world in three record speeds, and who had the full better than the "modern business man". He, with his knowledge on his own in all parts of the world, would appear to be just the man who would be prepared to mention any amount of comfort for speed.

### Has he asked for speed?

Experienced operators of airlines, such as Imperial Airways before the war and now B.O.A.C., have dealt with every type of passenger over many years. They feel that of this type of business man must at all be a man who is to be taken for what they have offered, and quite different, view of the modern.

business man requires an long or short journey, by air. He wants to know no time, travel in comfort, and have a pleasant break from business routine in possible.

### How to get him there on time...

No time is wasted where schedules can be rigidly kept and the man he selected more easily, so require, with a first of flying hours over with any other type of travel. Business men and any other passengers for that matter—want to know that they will arrive at a given place at a given time and be able to work their appointments in such a way. If they also have time at the airport, they must either to enjoy themselves or do other business, so mark the better.

### How to make him comfortable

Give him plenty of room. Don't crowd him. Give him a cabin with air more than about five other passengers a hour from his seat—be doesn't want to watch the backs of their seats, and the backs of their chairs, possibly for days. Give him large windows with a wide view of passengers. He'll get all these and a separate personal value and comfort bar—room to rest about and a changing atmosphere and view—on a short flying hour. "You'll find it's fun to fly by flying best with it's a better than ever."

## Shorts

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## MORE THAN A SHIM... an effective oil seal!

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Manufactured and stamped to your exact specifications at our factory, LAMINUM is composed of precision brass or steel laminations bonded into a "solid" shim. The ball-bearing legs, integral parts of the shim, reduce under oil-pressure to secure complete seal of liquid and pressure.

Write for data and application sheet.

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**LAMINUM**  
THE SOLID SHIM THAT  
FOR ADJUSTMENT

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## PROVED, RELIABLE PRODUCTS

"Unbrako" Alloy Steel Socket Screw Products, famed for their strength, are precision-made and the Internal Wrenching feature facilitates compact designs, thus saving material, space and weight. That's why these "Unbrako" Products are being specified more and more by aircraft engineers and designers.

"Hallowell" Steady-Made, most serviceable Shop Equipment of Steel given years and years of excellent service, which explains its ever-growing popularity. The line comprises: Workbenches, Tool Stands, Foreman's Desks, Chairs, Stools and Trucks—in a wide variety of styles and unusual built of sturdy, hard-wearing steel.

"Hesler" Self-Locking Nuts are the answer, all-metal construction, available in N.E. and N.C. thread series. The hexagon is unusually uniform, because it is controlled. The "Hesler" can be used over and over again without losing much of its locking ability. Sizes from 1/8" to 2" in diameter. Ask for your samples and literature.

Write us for the name and address of your nearest "Unbrako," "Hallowell" and "Hesler" distributor.



### SOCKET SCREW PRODUCTS



The UNBRAKO Internal Wrenching Socket Screw (left), and 100° Push Back Socket Nut (right) — meet the 100° degree of precision, inside and out, the unique capability of the aviation industry.



### SHOP EQUIPMENT OF STEEL



NO. 1000

"Hallowell" Shop Equipment of Steel — heavy duty — may be used with rubber lined tops.



NO. 1000

"Hallowell" Workbenches of Steel are of standard construction — heavy-duty — available in a variety of standard heights, widths and lengths.



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"Fleet Log" One Piece, Self-Locking Nuts — combine strength with a few less samples!

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# AVIATION WEEK

Apr. 26, 1948

## First Moves Made to Step Up Production

### Wright, Bell, Boeing set for new business; other companies report plans.

Industry spotlight was on private aircraft last week as signs of new government policy began appearing from the tired battle for air power. All signs on Capitol Hill.

Among the week's industrial highlights:

• **Wright Aeronautical Corp.** of Waco, Tex., awarded a \$1,315,115 contract for R-1190-26. W expects for delivery in the Douglas AD-24 trainer and the Lockheed PV-2 Neptune patrol plane.

• **Curtis-Wright Corp.** expects delivery in Columbus, Ohio, received an Air Force authorization to spend \$1,000,000 for building, testing and engineering services for quantity production of the P-67, four jet all-weather fighters now being flight tested at Dayton, Ohio, expects to be ready for quantity production in this plane next spring.

• **Boeing Aircraft Corp.** awarded a \$5,600,000 Air Force order for 70 Model B-17B Superfortresses. Company also received that the B-17B, a new experimental helicopter for the Air Force to investigate flight tests.

• **Boeing Aircraft Corp.** modification program for B-29 at its Wichita plant is gathering momentum with orders from that plant of the B-29-20 now in storage will be modified for active service. Air Force is giving top priority to this project and other companies, including Bell and Martin both of whom made B-29 during the war, are being asked to take on the program to add speed. Major B-29 modifications include equipping of tanks and recovery airdrop for aerial refueling installation of fuel systems engines and exhausts. Boeing B-29 will also be modified and following checkout tests now under way at Light Field, Fla.

Following developments as a result of government procurement policies announced:

• **Legislation** was introduced giving for a long range aircraft program: meet policy. San Diego Brewster (R. Mc) sponsored the measure on behalf of the Congressional Air Force Board. It will require

Secretary of National Defense to submit an annual report to Congress each year, 15 outlining a five-year aviation fuel research and development program for the Air Force and Naval Aviation. Another measure, sponsored by the Board called for developing production procedure by establishing a temporary commission on military aircraft which composed of representatives of the National Defense Establishment, the Bureau of Internal Revenue and the Comptroller General to make a comparative study of sales and signs.

action of the three agencies providing such, settlement and allocation of costs and expenses on government contracts.

• **Amendments to the House** S. 599-100,000 aircraft procurement bill making all contracts subject to the Reconstruction Act regarding the Defense Secretary to submit quarterly reports to Congress on progress of obligating funds appropriated, and assigning production responsibilities for determining that all contract specifications, "transmission mechanism of improvements

### Military Aircraft Available for 1949 Procurement

\* Indicates already in quantity production

\*\* Indicates contracts already indicated

#### Air Force

##### Jet Fighters

- \* Lockheed P-80
- \* Republic P-84
- \* North American P-86
- \*\* Grumman P-87

##### Jet Bombers

- \* North American B-45
- \* Canine B-46
- \*\* Boeing B-47
- \* Martin B-48
- \* Northrop B-49

##### Others

- \* Canine L-1
- \* Boeing L-12
- \* Stearman S-5
- \* Bell B-11
- \* Republic F-12
- \* Douglas F-13

##### Prop. Fighters

- \* North American P-82

##### Prop. Bombers

- \* Northrop B-31
- \* Canine B-32
- \* Boeing B-33

##### Cargo

- \* Boeing C-97
- \* Fairchild C-119
- \* Lockheed C-121 Constellation
- \* Northrop C-125 Pioneer
- \*\* Douglas DC-5
- \* Canine C-55

#### Naval Aviation

##### Jet Fighters

- \* McDonnell FJ-1
- \* Grumman FJ-2
- \* Grumman FJ-3
- \* North American FJ-4
- \* Douglas FJ-5

##### Prop.

- \* Lockheed F7N
- \* Martin F7M
- \* Grumman F7M
- \* Martin F7M
- \* Grumman F7M

##### Others

- \* Stearman E-208
- \* Bell H-1
- \* Republic H-2

##### Prop. Fighters

- \* Grumman FJ-2
- \* Grumman FJ-3

##### Attack

- \* Douglas AD
- \* Martin AD
- \* Grumman AD

##### Cargo

- \* Lockheed C-119
- \* Martin C-119

in aircraft and equipment consistent with defense needs of the United States."

• **Indications that a Four-Engine aircraft is under way to determine what aircraft can be affected by the new aircraft procurement program.** Among projects under consideration are use of the same jet fighter type by both Air Force and Navy and conversion of some transport types by both services. Standardized military nomenclature is another point being taken into consideration.

• **An Air Force procurement program** sponsored by Undersecretary Arthur Brown to cut out, on a future contract, Air Secretary Birmingham told House Appropriations Committee Chairman John Tamm (R-N.Y.) that cost of \$150,000,000 could be saved on first year's procurement program if the Air Force got sufficient funds to begin greatly expanded procurement for the 70-Gang program. Bureau job will be to accomplish \$100,000,000 savings among other things.

Meanwhile the activity was winding up, waiting for the procurement bill to become law and the flow of contracts to begin. Defense Services Firm now emphasized the use of the personnel policies in planning funds for the aircraft industry immediately was to spotlight production bottlenecks that might hamper later emergency expansion. An Aviation Week survey of key aircraft manufacturers on anticipated bottlenecks produced the following comments:

• **Robert E. Gross, president, Lockheed Aircraft Corp.** "Our tight spots will be leading gear assemblies, specialized forgings, and specialized sections of aluminum extrusions requiring new dies. I anticipate no shortage of key to buy personnel. Our administrative and executive areas of key people have been preserved. We may have some difficulty in obtaining competent engineering aid. Engineering skills have been retained largely since the war. Unfortunately a shortage of engineers qualified in original design projection. Aircraft structures have become so complicated that we can no longer depend upon a single good engineer, but we must have many able engineers, each skilled in a design specialty."

• **J. H. Knudsen, president, North American Aviation, Inc.** "I feel that our most serious problem will be in obtaining required and vital accessories at a rate to keep pace with aircraft assembly. Both these are complicated with new technology in their development to meet present and future requirements. There are no World War II items that can be used successfully in places which will be built in the near future. Our World War II management and executive teams will

only be intact, and I face no problems on that point."

• **F. J. Giese, Jr., president, Ryan Aircraft Co.** "Aluminum and steel supplies probably will be critical, and result in shortages of all aircraft based on availability of these items. It is difficult to predict a 'last critical bottleneck' without prediction of precise contracts which will define key industrial requirements. Ryan will have no shortage of top personnel."

• **Donald Douglas, president, Douglas Aircraft Co.** "At this time I can't answer a question of bottlenecks because we have had no specifications for our program. Under an industry expansion program my company, at the outset would be hampered severely by our lack of military orders during the past two years. To the best of our ability we have attempted to retain key personnel and aircraft personnel. I do not feel there will be any shortage of such people."

• **John R. Northrup, president, Northrup Aircraft, Inc.** "The most serious bottleneck to rapid expansion exists outside of the aircraft industry—in the production of engines, propellers, armament, radar and radio equipment, and under structure. Many are already contracted and require longer development and production times than can be set for engine development and assembly. To the best of our knowledge there is no shortage of executive personnel in the aircraft industry."

No aircraft president mentioned by Aviation Week anticipated a major crisis in employment of non-aviation personnel. No plant bottlenecks are predicted.

The critical problem of obtaining accessories, components or articles is supported by a leading West Coast



**XP42 TEST FLIGHT CREW**  
Left: Test flight flight engineer R. Lee Miller, center: test pilot Fred A. Hunsan, engineer in charge of Morse train, test supply from, mission test pilot, and test pilot. XP42 is the first jet of just fighter. XP42 has low Wingspan 34C jet engine and is equipped for all-weather operations.

aviation manufacturer, J. C. Garret, president of Aircraft Manufacturing Company. Garrett warned that close attention should be paid to engineering the position of component such as to engine, indicating that "likely percent of the total airplane cost is represented by accessories." Unmentioned by the aviation leaders was a bottleneck of procurement scheduling presented by the War Department Air Force acquisition. H. E. Ryker, vice president of Lockheed Aircraft Corp. (Ryker signed long range aircraft procurement as continued by a succession of short range orders for specific or allied models of aircraft.

He presented the fact that there is no order to delivery of fabrication materials and components is such that a re-ordering procedure, the completion of a specific contract, and introduction long and costly delays in production. He said that procurement costs could be cut 15 percent by long range orders. He cited the order for 170 new fighters in connection of an original contract which resulted in the cost to rise from that of the original order.

East Coast manufacturers are no exception. Many more than 60 people a week have been applying for under structure. Many are already contracted. I plant. Most of them are former Government employees. People feel the labor supply will be adequate and has been subcontracting extensively in its P-51 production program to keep its facilities available. Subcontracting may be a problem elsewhere. Many companies without past war production orders have trained connections with their wartime subcontractors and subcontractors are now concerned to other fields or out of business.

• **Labor Problem—Removal of previous draft legislation to protect the aircraft industry against rapid production turnover will probably be sought.** Conference on Air Policy, Conference was held by Richard W. Nelson, Northrup general manager.

What is needed is a new draft law which is probably too legal to use adoption. The law should be enacted to permit high priority manufacturers to certify the number and classification of equipment needed for production of a given contract. Approval of that certification by the Secretary of Defense would automatically prevent drilling of equipment. It would remove from our shoulders a terrible burden of uncertainty.

## Flying Boats Sold

British Overseas Airways Corp. has sold to General Flying Corp. New York, the three Boeing B-14 flying boats which were withdrawn from British Overseas service in January and replaced by Constellation.



## NACA SCIENTISTS RECEIVE AWARDS

For outstanding service in scientific research during the war, seven group above received the Medal for Merit from General Spence. The group above (l. to r.) Dr. J. H. Doolittle, NACA, Chairman; Dr. Lewis I. Bage, NACA, Chairman; Dr. George W. Lewis, NACA, Director of Aeronautical Research; John P. Vukobrat, NACA Executive Secretary; General Spence, Dr. Henry J. E. Kuhl, director Langley Memorial Aeronautical Laboratory, Smith J. DeWitt, director National Laboratory and Edward R. Stupp, director Flight Propulsion Research Laboratory. (Photo Air photo)

## New Air Force Test: The Senate

70-Group program whipped through House as Vinson, former Navy backer, swings to the side of air power.

The Air Force was acclaimed the country's new "first line of defense" when the House last week voted \$1,165,000,000 for aircraft procurement by an overwhelming 343 to 3.

The vote was a strong endorsement of the 70-Group Air Force. It was Georgia's Democratic Rep. Carl Vinson, a strong-statement leader in national defense, who said the Air Force is his new designation. Only a few years ago, in 1943, Vinson had acclaimed the aircraft carrier the "pearl head" of the Navy, the country's first line of defense.

Overriding Defense Secretary James Forrestal and the Joint Chiefs of Staff, the House added \$122,000,000 to the \$1,165,000,000 requested in the present bill for Naval Aviation and a 55-Group Air Force program. (Aviation Week April 1)

• **Scenic Flight License—Meanwhile, in the Senate side of the Capitol, an incident involved a second defense plan (the Joint Chiefs of Staff, repudiating the discarded Ray West plan) called for the 55-Group program, the movement for the 70-Group program—led by Sen. Harry Cabot Lodge (R-Mass.), Sen. Russell M. Metcalf (D-Ct.), Sen. William Knowland (R-Calif.)—passed strength. Key Sen. Glenn Gurney (R-Dak.), chairman of the Armed Services Committee and chairman of the War Department Air Force appropriations subcommittee, stood up behind Forrestal and the Joint Chiefs of Staff,**

however, announcing final action would await the second annual defense plan.

Appropriations committee chairman, Sen. John H. Chafee (R-N.H.), called for speedy action on 70-Group Air Force bills, and GOP policy leader Sen. Robert Taft (R-Ohio) supported the general principle of a 70-Group Air Force.

Speech is continuing the Air Force bill, the country's "first line of defense," Vinson noted. He said an oral personal opinion and listed the following reasons why the United States must act, on the air:

(1) We cannot hope to stand in number, Russia's Army. Counting support of satellite states, it now totals 175 divisions. At the peak of World War II, U. S. forces totaled 100. We cannot accept atomic weapons unless they are in a position of clear superiority but we must recognize that Russia has not traditionally been a super power and largely due to its economic self-sufficiency does not need naval bases for the protection of its sea lanes of supply. In surface naval forces, Russia is not at present a threat to our interests. These are indications of considerable expansion which will be appropriate counter measures on the part of this country."

(2) The U. S. Navy alone is greater than the combined naval forces of the rest of the world. "We must maintain this force in a position of clear superiority but we must recognize that Russia has not traditionally been a super power and largely due to its economic self-sufficiency does not need naval bases for the protection of its sea lanes of supply. In surface naval forces, Russia is not at present a threat to our interests. These are indications of considerable expansion which will be appropriate counter measures on the part of this country."

(3) "It is in the air that we are capable of competing with Russia and they are capable of competing with us. Propaganda of an air power is the balance. It is in the air that the first step to struggle is likely to take place. The lesson of World War II, emphasized by everything that has taken place since, is, you cannot lose war with air superiority and you cannot win a war without it."

(4) "In the event of a war, it is the Air Force which will be first in action, performing their mission, some in cooperation with the other two services. Thus we defend the U. S. against attack by response of more destruction and against foreign nations by ground forces. We must maintain this, and so far as able, protect those countries into which we are now pouring billions of dollars to help them resist... and don't blast against every concentration of lines, military bases, industrial operations for the immediate purpose of forestalling the launching of attacks against us and for the ultimate purpose of helping the enemy's will and capacity to win."

These four rules could not be performed," Vinson concluded, "unless America has an adequate Air Force in being ready, for instant use."

We have an impressive array of evidence before us... that a 70-Group Air Force is the minimum requirement for national safety."

• **Strong Support—**Vinson's speech, buttressed by statements of Rep. Lester Johnson (D-Ill.), Sen. Charles McNair (D-Ind.), Sen. Fred A. Hunsan (D-Mo.), Rep. Leroy Johnson (R-Calif.), Rep. Charles McNair (R-N.H.), and other so-called members confirmed such overwhelming support for the 70-Group program that the House Appropriations Committee, which had approved funds to implement only the 55-Group program, reversed itself and approved the increased funding.

The House added \$122,000,000 for Air Force procurement.

Enthusiasm of members for the 70-Group program led to such proposals that Majority leader, Rep. Charles McNair, led a strongly proposed that delay would be detrimental to national security in a bipartisan effort to speed making time to 30 minutes. The vote on the measure was 343 to 3.

The vote on the measure was 343 to 3. The vote on the measure was 343 to 3. The vote on the measure was 343 to 3.

(5) "It is in the air that we are capable of competing with Russia and they are capable of competing with us. Propaganda of an air power is the balance. It is in the air that the first step to struggle is likely to take place. The lesson of World War II, emphasized by everything that has taken place since, is, you cannot lose war with air superiority and you cannot win a war without it."

(6) "In the event of a war, it is the Air Force which will be first in action, performing their mission, some in cooperation with the other two services. Thus we defend the U. S. against attack by response of more destruction and against foreign nations by ground forces. We must maintain this, and so far as able, protect those countries into which we are now pouring billions of dollars to help them resist... and don't blast against every concentration of lines, military bases, industrial operations for the immediate purpose of forestalling the launching of attacks against us and for the ultimate purpose of helping the enemy's will and capacity to win."

These four rules could not be performed," Vinson concluded, "unless America has an adequate Air Force in being ready, for instant use."

We have an impressive array of evidence before us... that a 70-Group Air Force is the minimum requirement for national safety."

Enthusiasm of members for the 70-Group program led to such proposals that Majority leader, Rep. Charles McNair, led a strongly proposed that delay would be detrimental to national security in a bipartisan effort to speed making time to 30 minutes. The vote on the measure was 343 to 3.

The vote on the measure was 343 to 3. The vote on the measure was 343 to 3. The vote on the measure was 343 to 3.

## State Department Approves

State Department has approved the sale of 15 North American P-51 Mustangs to France for \$75,000. The planes originally cost \$75,000.







Boeing DC-3 with catenary gear it brings transports to clear its runway.

## Castering Gear for Transports

Successful demonstration at Washington National Airport may make possible the use of one-runway airstrips.

By ALEXANDER MUSEURELY

When a Paper Cub finally crossed a year ago with the aid of a catstrapping gear, it was regarded as a first thing for its first flight. But when a big two-engine Douglas DC-3 and a smaller one-engine Beechcraft Model 18 do it just as easily, the whole catstrapping gear idea begins to add up to commercial air transport significance.

At Washington National Airport, Goodrich Aircraft Corp. and All American Aeronautics, Inc., have demonstrated two types of catstrapping gear on a DC-3 and a Twin Beech, respectively. The exhibition took little time at all to the practicality of the gear for large transport-type planes.

■ **CAA Placed—CAA** officials who are feeling pleased about the results of a relatively modest \$150,000 expenditure for continued post-development, construction experiments. America's Goodrich G-22 amphibious, Fairchild PT-41 trainer, Stearns Voyager, and Cessna 160. Northern Aviation Co. also has developed a catstrapping gear for its biplane Pioneer biplane. The Goodrich catstrapping gear it is able to be adapted to several other two- and four-place planes.

■ **All-American Gear—The All-American** catstrapping device demonstrated on the Beechcraft is contained entirely within the standard wheel shock strut. The mechanism uses a chain, a 1/2-inch by 1/4-inch, and a vane-type stream deflector, contained within and using the fact for a source of dual and pressure. Robert M. Low, All American president, has personally acted as test pilot for the device, and piloted it at the CAA demonstration.

It was designed, built and installed

on the airplane under supervision of Donald B. Donlin, engineer, and Edward T. Connolly, aircraft safety representative. Excessively, except when the wheels touch, there is no reduction of the device. The wheels will swing as far as 30 degrees in either side of center.

■ **Goodrich Gear—Goodrich's DC-3** installation, except for a unit, is virtually identical with the existing wheel installation first tested on a Paper Cub transporter over a year ago. However, All American, Goodrich test pilot, and G. W. Leventhal, engineer in charge of the development, report that only 15 degrees of deflection is needed on either side, instead of the 25 degrees used on the Cub when. This is because of the DC-3's larger landing gear and additional weight. DC-3's weight about 20,000 lb., and the Cub's about 1,000 lb. Part of Chapman's design station at Washington was made with 14 percent shock. Additional aids will be added up to full ground load.

Considered at the time of the demonstration was around 20 mph, about 95 degrees across the EW runway. Chapman reports that with the DC-3's wheel gear, the landing gear and aircraft with winds as high as 40 mph.

■ **Castering Mechanism—The Goodrich** catstrapping mechanism is contained within the wheel. The wheel pivots on a long, reinforced by a stationary supporting cast on the horizontal plane. A chain follows rising in the supporting cast at the base of the landing gear struts. The mechanism also is included may inside the wheel because of the design of the single disc brake used by Goodrich. This leaves room inside the hub for the bearings and cast support. No further, the spring is accomplished by a coil spring at the top of the landing

While the catstrapping wheel on the Goodrich DC-3 is a prototype, the company is already in limited production on the smaller two-wheel light planes. A third, intermediate size, catstrapping wheel is being planned. Leventhal says the steel packaged overcast wheel and brake set on the 17-00-35 wheel cast for the DC-3 can be made available on other planes using catstrapping clearance is available.

Goodrich is prepared to engineer similar catstrapping wheels for airplanes of any size. Tail wheel landing devices have been demonstrated on the Goodrich DC-3 and installed a special spring loaded chassis damping links is used on the tail wheel.

Main advantage of catstrapping gear is that it may enable transports to use one-runway airports close to metropolitan areas, regardless of wind direction. Los Angeles has been discussing a single runway to open the Los Angeles area, including Chicago, Milwaukee and Detroit already have in use, under construction, or under construction. Latest airports consistent to downtown areas.

CAA has indicated that the worst of the catstrapping gear may make possible large savings in airport land and runway building. It now is approving one-runway airports, and has indicated that the 1980 program project may be revised to eliminate secondary runways.

### NATA Western Drive

A four-day drive in gas now chapter and members will be completed last week by Henry Maxwell, executive director of National Aviation Trades Association. The NATA office launched a widespread tour representing an joint effort appearing at the California policy conference to keynote NATA's opposition to any congressional legislation which would curb flight aviation training or curtail the right of a veteran to enter for admission, the school of his choice.

In his drive to increase NATA's presence before Congress in 40 state chapters Maxwell spoke before airport and school associations in Portland, Ore., Spokane, Wash., Salt Lake City, Utah, Reno, Nev., and Phoenix, Ariz.

### News From Moscow

AVIATION WEEK continues from Moscow will remain unknown despite the news service of Robert Magdoff, McGraw-Hill World News correspondent, on transport or aerospace changes.

Magdoff called from Tashkent last week that on the day before his departure the Russian press department had accredited Andrei Stogin as McGraw-Hill correspondent in the Soviet capital.

Stogin, an American citizen, had been Magdoff's assistant. A story on Soviet civil aviation growth appeared under his name in Aviation Week Sept. 5.

Episodic changes against Magdoff, also an American citizen, were based on a notice given assignment on which he acted no story because of censorship. Rumor orders that he leave Moscow followed publication on the basis of an account later from his history, a Russian citizen.

He noted that "no foreigners in Moscow, including diplomats also have contact with our correspondents who have no immunity, a safe from possible charges. Charges may range from espionage and designs to black market trade in aviation and aerospace." It's anybody's guess who will be next (Americans are most vulnerable) or what the charge will be.

The Moscow office is one of nine McGraw-Hill foreign news bureaus. In addition, there are World News correspondents in 51 other foreign cities.

## INDUSTRY OBSERVER

■ **Joint Air Force-Navy-NACA** impromptu flight test program now under way at Muroc Dry Lake, Calif., has recently needed new top speeds with rocket-propelled research planes.

■ Lockheed is expected to be building a space-plane Constellation for Air Secondary Space System. Constellation may be one of its recently introduced, by Air Force, and remaining now will be on flight.

■ Jack Northrop says the aerospace level of sound produced by his YF-17 jet flying wing is considerably lower than the noise from the propeller driven version, the XB-35. Northrop says the propeller driven bomber's noise was of longer duration and spread over a wider area than sound from the highly directed jet exhaust.

■ Boeing's X-46, morphing Stratoscope, has completed phase 1 flight with an XB-70, which will be turned over to Air National Command for further tests.

■ North American XF-106 is now being fitted with a General Electric TC-159 turbojet engine delivering 6000 lb. static thrust. This increased power is expected to carry the craft into the new vicinity of sonic speed.

■ Preparation for the first test flight of the Douglas XF101D was completed a month ago. The two jet-two engine fighter carries a fully "pod" location of the Westinghouse J4C multi-fuel turbojet engine. Craft is designed for long-range search and air security missions with the day.

■ The current operation problems which may not be solved until the new \$8,000,000 carrier is available.

■ Air Force engineers are disappointed that the new intake duct arrangement of the Republic F-105 Thunderbolt fighter under construction of the craft have a phasing sequence. While the modification of carrier equipment in the Lockheed P-40 proved a simple design problem, due to its wing as various preliminary design studies on a photo-F-4 have given the idea impractical.

■ Air Force has completed preliminary contract negotiations with General Aircraft Engineering Corp. for procurement of a USAF version of the XJR21-1 amphibious.

■ Head line announcements have been issued for the acquisition of plant B at the wartime North American Dallas, Tex., facility by Chance Vought Aircraft Division, United Aircraft Corp., for production of the Vought F-105F F-105F fighter.

■ Second General XF-102 F-102 fighter has been completed and both prototype airplanes are being used to check Navy pilots, who will fly performance and stability tests at Naval Air Station, Patuxent, Md., this summer.

■ No. 3 F-4 Phantom II is now fitted with an improved Allison X-300 turbojet engine. No. 3 will fly with an Allison J-35 turbojet engine.

■ Early test flights, with single motion problem on the Northrop XB-35 at Muroc Air Force Base have permitted the airplane to develop full performance for the first time. The new 17th, Hamilton Standard nose blade space tipped blades avoid the trouble-plagued problem of the counterbalancing that possibly arrangement on the wing.

■ McDonnell Aircraft will continue its high-altitude test flights of the ground-powered Vought fighter which holds the new world's altitude record of 95,492 ft.

■ The second Atlantic coast has moved wing span and area.

■ Dean Ditch aircraft test delivery on special delivery mission of a North American B-25 light bomber. Her pilot is veteran A. B. Fitzgerald, former American Airlines captain and now chief of the Delta "aviation department."

■ G. F. Kettering's special Chlorobenzene jetted powered by the new Kettering high compression engine has been scheduled at airports on its cross-country test run due to its design for operation on 100-octane gasoline.

■ Look for a series of experiments in converting regular superchargers to engine turbos, as done by West Engineering Co. (Aviation Week, April 21). Grand Central Airport Co.'s subsidiary Civil Aero Technical Institute, Glendale, Calif., has a similar turbo on test stand and engineering plans for a radial separation of compressor and turbine rotors in a future model. Hamilton and American, also in Los Angeles, with plans for a large turboprop, are among superchargers now under test to test, at low cost, engineering personnel is applied in the larger engine.

### AVIATION CALENDAR

- May 14-15—Third annual Southeastern Air Show, Jacksonville, Fla.
- May 15-16—1964 National Defense Program Review, Washington, D.C.
- May 16—1964 National Aircraft Transportation Conference, Washington, D.C.
- May 16-17—1964 National Institute of Aircraft Transportation, Washington, D.C.
- May 17-18—1964 National Institute of Aircraft Transportation, Washington, D.C.
- May 18-19—1964 National Institute of Aircraft Transportation, Washington, D.C.
- May 19-20—1964 National Institute of Aircraft Transportation, Washington, D.C.
- May 20-21—1964 National Institute of Aircraft Transportation, Washington, D.C.
- May 21-22—1964 National Institute of Aircraft Transportation, Washington, D.C.
- May 22-23—1964 National Institute of Aircraft Transportation, Washington, D.C.
- May 23-24—1964 National Institute of Aircraft Transportation, Washington, D.C.
- May 24-25—1964 National Institute of Aircraft Transportation, Washington, D.C.
- May 25-26—1964 National Institute of Aircraft Transportation, Washington, D.C.
- May 26-27—1964 National Institute of Aircraft Transportation, Washington, D.C.
- May 27-28—1964 National Institute of Aircraft Transportation, Washington, D.C.
- May 28-29—1964 National Institute of Aircraft Transportation, Washington, D.C.
- May 29-30—1964 National Institute of Aircraft Transportation, Washington, D.C.
- May 30-31—1964 National Institute of Aircraft Transportation, Washington, D.C.
- May 31—1964 National Institute of Aircraft Transportation, Washington, D.C.

## C-W Proxy Fight

Committee of stockholders,  
wanting cash distribution,  
wins an management

A fight for control of Cetus Wright Corp. was staged last week as a group of stockholders went into the annual meeting determined to oust the present management.

A committee of stockholders, under chairmanship of L. B. Baret, New York attorney, sought control in order to make a 50 per cent cash distribution on the common stock. An alternative measure would call for the retirement of one-half of the outstanding common stock at \$44 per share.

C-W management replied that, in setting it would introduce "partial liquidation" of the company that was the number one World War II production and one better, larger in stepped up production program.

● **\$52 Million Drive**—The stockholders committee proposed would result in cash distribution of more than \$52 million. The committee claimed that the common stock has received less favorable treatment than the Clin "A" stock. The contention was made that the "A" shares are entitled to a non cumulative annual dividend of \$1 per share.

Further, that while the call price of this stock is \$40 per share, it has as performance on liquidation but a control to cash the same distribution on liquidation is the common stock. It also was asserted that for the seven year period ending Dec. 31, 1947 a total of about \$12 per share was earned on the common stock, of which only \$4.50 was paid in dividends. During the same pe-

riod, a total of \$14 per share was paid in dividends on the "A" shares. The committee proposes to vote accounts by paying a special 50 per share dividend to the common stock, or to return half of those shares at \$14 per share.

● **Cash Position**—The committee found support for its recommended program in the statement of President Vaughan that the company has an excess of \$60 million in working capital. The committee also alleged that the company has been losing its competitive position in the industry and further does not need as much cash to conduct its present scale of operations.

The management pointed to its 14 year record. A net worth of \$26 million soared to more than \$122 million. Going over a period of 16 years, instead of seven as the opposition did, the Vaughan board declared that \$62 million in dividends or a paid, of which \$26 million went to the common stockholders and \$36 million to the "A" stockholders.

● **Closing Backlog**—In 1946, says the committee, it was in the position in the industry. President C. W. Vaughan declared that the company's backlog of work is now so large as to make it impossible to deliver. As an indication of its returning status, the president declared that backlog of orders increased to \$140,000,000 from the \$110,000,000 shown at the 1947 year-end. Moreover, an additional \$50 million in orders are said to be in the final process of negotiation.

The Baret group called attention to that it forced probable future trading by an offer of the company, as the "A" stock prior to the merger situation and subsequent declaration of the dividend on this stock during 1946-1947 at

## Sorry, They're Gone

Extra copies of Aviation Week's 1948 Yearbook, with complete industry statistics and analysis, no longer are available. Announcement Mar. 29 that copies still could be purchased brought a demand that for cancelled subscribers' Yearbook supply. It is reported that further orders cannot be accepted.

and, such advance information was unknown to the public. The opposition further alleged that the Vaughan group earned more than five times as much Clin "A" stock as common, its market value, hence the interests of the two classes of stock were not being fairly represented.

The opposition objected to the call and retirement by vote of 204,653 shares of "A" stock at \$28.75 per share and to the retirement of one-half of the common stock. It presumably would put an end to any further retirement of this class of stock.

These are outstanding 7,410,112 shares of common stock, and 931,669 shares of "A" in the hands of the public. Both classes of stock have equal voting rights. The stockholders committee represents 50,500 shares of common.

## New Fluter Jet

Under NE-31 turbojet gas turbine engine has completed preliminary development tests at the North Tarrytown, N. Y. plant of Pratt & Whitney. Designed to develop 2,600 hp, the large engine shows a mid-range and low compressor, multistage turbine and an adjustable nozzle to accommodate changes in thrust. The powerful engine has been under development for three years under the Navy contract and is the most powerful aircraft engine ever certified tested. Fluter is a former Cetus Wright chief engineer and was given 17 1/2 in. research and development on gas turbines, both aircraft and industrial. The firm is a contractor to the NEPA project.

## Bell Wage Increase

A threefold strike at Bell Aircraft Corp., Buffalo, was ended by union acceptance of a 10 cents an hour wage increase. Lawrence D. Bell, president of the company, previously had announced that the plant would be shut down if a strike was called. Bell resignation of a union shop since as a result of a 67 1/2 to 100 vote of productive and maintenance workers' acceptance, held 901, United Auto Workers (UAW) is beginning again.



## Another step towards greater airline safety

The new Kollsman Altimeter Setting Indicator for airway control stations provides a direct, continuous, accurate indication of the altimeter setting for broadcast to the aircraft. By eliminating potential sources of error and delay present in existing methods, the Altimeter Setting Indicator offers another step towards greater airline safety. By its greater accuracy it also makes possible more accurate indication by the altimeters in the aircraft — an important consideration in steps towards all-weather flight.

## KOLLSMAN AIRCRAFT INSTRUMENTS

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## CANADIAN AVRO JET TRANSPORT

Avro's acquisition of modified A. V. Roe Canada C-502 jet engine results conventional line and classic meeting of two Robinsons-Barnett V transport engine. Cost is expected to be completed early next year. Avro engineers have been forced to incorporate four design features of high-altitude, high-altitude jet with conventional engine engine equipment, which can make good weathering airplane. (Right detail)

## BRIEFING PRODUCTION NEWS

► **Pitt & Whitman** divisions of United Aircraft Corp. will sponsor a broody grant and operating chair at the plants early of its four industrial sales and service representatives to assist personnel with the latest factory recommendations past year. The four dealers are Southeast Armature Co., Dallas, Tex.; Pacific Alamo Inc. Corp., Berkeley, Calif. and Laidlaw, N. J.; Aircraft Corp., Milville, N. J.; and Northwest Aircraft Co., St. Paul, Minn.

► **Cummins Motors Corp.** says aircraft engine shipments during March were the largest since May of last year. It reported total automotive, aircraft, industrial and marine engine shipments of 12,671 units. Unfilled orders are in excess of \$78,000,000.

► **Ferreries Industries Co.,** Cincinnati, reports an all time record tonnage production of laminated material for the year 1967 with over 11 million pounds in all forms of material shipped to customers. The company produces a wide variety of aircraft cable pulleys, brackets and various other laminated plastic parts for aircraft.

► **Lockheed Aircraft Service, Inc.,** Burbank, Calif., has graduated some 517 B-57 light engines and machines for more than a dozen airlines operating Constellation transports. The customer education training program is designed to graduate complete and on ground crews simultaneously with delivery of the aircraft. The flight engineer course covers are to 12 weeks, depending on the experience of the student, the new dual wheel engines a 25-day course in the same system as the student.

► **B. F. Goodrich Co.** has installed a new oil hose high in the miles of rubber conveyor products. A new synthetic adhesive for fastening brake linings to brake bands is expected to be an important factor in boosting the sales drive. Known as Plastibond, the new cement replaces nuts in brake lining attachment and permits the lining to be on a tight drum to the band instead of only about half way before a replacement is needed.

► **G. M. Gearing & Co.** reports substantial price reductions for all instruments in production at the Pasadena, Calif., plant. The price changes reflect the cost of aluminum pressure transducers, temperature transducers, accelerometers and other equipment. Lower production costs plus a two million dollar backlog for the current year permit these reductions.

► **Cherry, Rivet Co.,** Los Angeles, has opened a Chicago branch office at 5777 West Roosevelt Road, Cicero, Ill. The branch will stock its inventory at Cherry Rivet Assets and maintain a service shop for tool repairs and experimental work in connection with Chicago area requirements.

► **Panelsco Helicopter Corp.,** Morton, Pa., is negotiating with Helicopter Engineering Research Co., Philadelphia, for the license of several Panelsco basic helicopter patents to HREC, including a design patent for a Panelsco helicopter which HREC's model of the HREC JCV-1 was being test flown. Officers of the latter firm are all former Panelsco employees.

► **Pacific Aerospace Corp.** has appointed the following operations as authorized service stations dealers for the Southern Magnetics Division of Boeing Aircraft Corp.: Grand Central Airport Co., Glendale, Calif.; Reno and Laramie Aircraft Repair, Concord, Calif.; and North Bay Aircraft Service, Santa Rosa, Calif. Grand Central is also an authorized service station dealer for Shoroback collectors, Eclipse-Power receivers and Ranger engines.

► **AR Research Manufacturing Co.,** Los Angeles, has received a contract to replace all engine pressure controls in the fleet of Lockheed L-49 Constellation operated by British Overseas Airways Corp. The new equipment makes possible automatic cabin pressurization from the ground up. AR Research is currently supplying the new Constellation, Boeing Stratocruiser and Convair Lancer as well as 99 percent of all military jet planes with cabin pressure instruments.

► **Carbor Tool and Manufacturing Co.,** Los Angeles, Calif., has changed its name to Aero Products Co. They are engaged principally in manufacture of aircraft component parts.

► **Bell Aircraft Co.'s** Model 47D helicopter has been granted a blanket CAA license to shut with surplus. This is the first time that all aircraft of a specific model have been given blanket privilege.

## Long Range Buying

Legislation asking for long range aircraft procurement was introduced last week by Sen. Owen Brewster (R., Me.) on behalf of the Joint Congressional Aviation Policy Board.

The measure would direct the Secretary of National Defense to submit to Congress on Jan. 15 each year a report outlining a five-year researched procurement and research program for the Air Force and Naval Aviation. The measure emphasizes the program "within the limitation of appropriated funds."

It also authorizes immediate appropriation of funds "as may be determined to be necessary for the immediate expansion of the aviation air power."

Another measure introduced by the Board to stimulate procurement policies sets up a temporary commission on military control with a compound of representatives of the National Defense Establishment, the Bureau of Internal Revenue, and the Comptroller General to make a comparative study of rules and regulations of the three agencies governing the audit, settlement and clearance of costs and expenses on National defense establishment contracts.

## New USAF Office

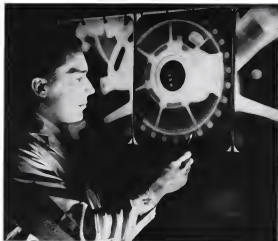
Air Force Procurement Field Office has been established at Consolidated Vultee Government Aircraft Plant No. 4, Fort Worth, Tex. New subcommittee area with the Dallas Air Force National Office and the USAF plant representative at Clinton. Headed by Lt. Col. Thomas H. W. Jones, the office will be headquarters of Procurement for on 10-15th area.

## Guatemala?

Minister of Economy of Guatemala is negotiating with the Glenn L. Martin Co. for the purchase of three Martin 2-2 transports. The 36-passenger version is for use on the proposed international service of the government-owned Avianca Airlines.

## Piper Loss

Piper Aircraft Co. announced last week of \$222,777 after tax carryback credits of \$140,900 for fiscal year ended Sept. 30, 1967. Sales for the year were \$12,638,250.



## X-RAYS GET THE INSIDE STORY

► This Wright technique is rendering an X-ray negative of a vital engine part. The penetrating X-ray has revealed a small flaw inside the casting — where the shaper human eye would never see it.

► But like your family doctor, the Wright engineers are more interested in preventing trouble than in curing it. The findings of X-ray are not limited to the reception of parts. Information about the behavior and quality of metal is passed along to the foundry.

most, the largest, the countless others who make the parts.

► Better parts are the logical — and permanent — result. Technicians in the Wright Aeronautical Laboratories X-Ray the models of parts to each month and 10 experiments are made on some of the more intricate parts.

► Another example of the care—the distinct for perfection — made in development of Wright aircraft turbine and reciprocating engines.



POWER FOR AIR PROGRESS

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North American B-45 • North American P-86  
Boeing B-50

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HYDRAULIC EQUIPMENT

## All-Weather Airway: 15-Year Job

Target system of RTCA to cost nearly a billion dollars and improve airways efficiency more than 50 percent.

By ROBERT ROTZ

Development, installation and full operation of the largest system of air-traffic, electronic airways proposed by the Radio Technical Commission for Aeronautics will take at least 15 years. It will require minimum expenditure of \$150,000,000 and, if successful, improve efficiency of the present Federal airway system by better than 50 percent.\*

Biggest problems in achieving this system within the specified time limits are apt to be administrative rather than technical. Present plans are to have each agency concerned (Air Force, Navy, CAA, Air Transport Association, etc.) carry out its own segment of the program, with a permanent RTCA steering committee to coordinate and monitor progress. Since RTCA can act not only when its interests are concerned, this method is not regarded as the best means of ensuring rapid and technical sound progress.

■ **Suggest New Agency**—Some participants in RTCA proceedings believe a new agency will be required to run the system program. They suggest that it be part of the Dept. of Commerce and administered in a civilian mode. Policy decisions would be made by a Bendix composed of representatives of all participating agencies.

A specific agency budget would be submitted to Congress and all funds committed specifically for the program.

Another bureaucratic point is the two-year contract limitation. All contractors below it should be lengthened to five years along with authorities for negotiated contracts and defense promises of a production market for successful research contracts. About \$75,000,000 will be required for research on light weather equipment.

The following equipment is specified for the target system.

### Airborne Equipment

■ **Traffic Control Unit**—This must occupy no more than 35 sq. in. of the cockpit instrument panel. It will contain a radar beam which, when interpreted by ground radar, will give the plane's range, bearing, altitude and identity in ground traffic control stations. Other half of the equipment will be a private line visual communication system for mutual traffic control communication.

■ **Navigation Unit**—This will provide the pilot with his range and bearing

from each ground station, and contain an automatic off course computer for use on multiple line airways, ILS and distance measuring devices for instrument landings, surface navigation equipment for landing on relatively air ground VFR, voice communications, potential cockpit display of other air traffic, weather reports, approach area holding pattern and airport runway layout and structures, and equipment for automatic flight control during on route navigation and landing.

All of this airborne equipment will add approximately 115 lb. to each plane—traffic control unit 70 lb.; private line communications 45 lb.; radar beacon 30 lb.; and navigation unit 20 lb.

### Ground Equipment

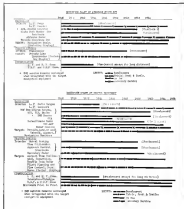
■ **Traffic Data Radar Equipment**—This consists of two elements: secondary

radar to interrogate airborne radar beacon and receive altitude, bearing and distance information continuously, and periodic identification from all planes in flight, and the private line radar communication link that transmits and receives routine traffic elements, safety separation signals and pilot's instructions requests without use of voice channel. The private line will also receive at regular intervals an derived navigation information for each plane in flight and will transmit it to the instrument air traffic control equipment.

■ **Airborne Air Traffic Control**—This consists of three elements: altitude operations, flow control, flight path planning, report time utilization, and detailed flow control and ground planning display equipment.

■ **Airspace Separation Equipment** provides a block control analyzing airspace occupancy data and transmitting it to planes with necessary separation signals to insure safe operation.

■ **Flow Control** receives position and identity reports from aircraft in flight and compares them with previously scheduled flight paths to provide a smooth, even traffic flow. It transmits clearance required for safety and traffic flow through the airspace operation equipment to insure against instance of



drawings which are considered to be final.

Comparing ground detail with analysis of wingtip performance, if spins and reports are significant deviations to both point and ground traffic control personnel.

► **Flight Path Planning** Installation rules data on all aircraft planning to operate over any given route to specific destinations and sets up flight paths to handle the traffic in the best pattern.

► **Aspect View Utilization Equipment** will be designed to merge numerous subdivisions of aircraft. It will assign specific landing and taxiway times.

► **Detail Path Control Display** will provide a visual and printed display of any positions of the approach area, that may be deemed at any particular time. Display will contain position and schedule data as an aircraft in the area.

► **General Planning Display** will present valuable information on all aircraft arriving or departing from airports with in a general control area.

► **No-Aid Equipment**—This ground traffic, based on time coordinate system, will provide aircraft with their bearing and distance from the station plus state-of-VISIF communications. It will also transmit traffic data into the airborne picture display on the pilot's instrument panel.

► **Landing Indicators**—This will provide aircraft with their direction from the centerline of the landing runway. virtual devices from altitude, glide angle, rate of turn, and distance from the touchdown point. Monitoring equipment will provide the general status with indications of aircraft position in final approach, during landing and departure. It also provides equipment for bidirectional landings (BOL).

► **Aspect view navigation equipment** will provide pilots with information necessary to find around the airport surface through heavy traffic and bad weather. It also provides traffic on traffic with position data on all aspect surface traffic information.

► **Target Potential**—When complete, the target system will consist of 550 on board altimeters equipped with search radar, traffic data links, equipment, radio separation equipment (radio, visual) and Non-Aid, VISIF aspect control system, and 90 ground control areas each of which will contain a general planning unit and a detail flow control unit.

The system is designed to handle a fleet of 100,000 aircraft of which 35,000 will be private planes, 30,000 army air transports and 35,000 military aircraft. Approximately 15,000 military planes and 5000 unarmored aircraft are expected to be equipped with dual air-traffic equipment for safety purposes.

Major technical problems to be solved in the target system include development of a suitable computer and the

## Research Review

# Slots: Advantage and Disadvantage

While they increase lift of wing, they may also have adverse effect on airplane's spinning characteristics.

By ROBERT McARTHEN

The ability of most slots to combine with leading edge flaps to double the lift of an airplane wing has been well known for two decades.

Various slot forms and mechanisms have been used successfully in dozens of aircraft of all types and sizes.

► **Slot Supplement Speed**—This characteristic of providing high lift coefficients enables the slot an airfoil and to high speed aircraft, which are equipped with comparatively low lift airfoil sections chosen for their low drag qualities. General examples include the North American X-15, Northrop X-15 and X-15B, Boeing X-15, and others. At low airspeeds, slots also act as such they move sections on the double wing and increases from inside the flight test stage the use of slots may be considered if reasonable loading speeds are to be provided.

► **Effect on Spin**—Careful tests by the National Advisory Committee for Aeronautics indicate, however, that open slots can have serious adverse effects on airplane spinning characteristics. The tests indicate that both the nature and the degree of the effect of slots on spinning characteristics are largely the result of the airplane's span distribution. Practically complete separation of the effects of slots can be obtained by consideration of the metric yawing moment parameter ( $U_0 - U_1$ )/ $U_0^2$ , in which  $U_0$  is the measure of moment of the airplane about the longitudinal axis,  $U_1$  the moment of inertia about the lateral axis,  $U_0$  the mass of the airplane and  $U_1$  the spin.

For values of this parameter less than 0.0050, open slots had only a small effect on angle of attack and critical values in the spin had values above this quantity caused the airplane to enter the spin and brought about a

prolonged loss of communication system. priority is recommended for private line research and development since it is an air-to-air battle situation and target systems will not relieve the already over crowded voice communication channels.

► **Research**—Recent tests by the National Advisory Committee for Aeronautics indicate that the adverse spinning

characteristics of slots are not a function of the slot's yawing moment parameter.

► **Passive Dependence**—The value of the metric yawing moment parameter depends on the relative loading along the leading edge and wing. When weight is added along the wing or increased from the leading edge the value increases but when the design compensates a heavy leading edge and light wings the value decreases.

In designs of the latter distribution of weight in a spin, open slots tend to have a favorable effect when the slot value is neutral or down, but little effect when the slot is full up. In designs with a comparatively large distribution of the weight along the wing, such as multi-engine aircraft and those with heavy tail and moment loads along the wing, the effect of slots on the spins can be a mixed result—and this effect may be of serious significance.

In either case of mass distribution, however, slots change the angle of wing tilt which leads to a lowering of the angle of attack.

► **Problem Faced**—These results might indicate the lack of reliability of automatic slots, which open to the angle of attack increases beyond a predetermined value. This feature, however, is one of the important means of spin, thereby posing a difficult problem for the engineer with both a favorable and an unfavorable effect resulting from the use of a device.

The value of automatic slots is greatly increasing the stall speed of an airplane, thereby acting to minimize its spinning possibilities, may outweigh the adverse effects of their use after the spin has begun.

These tests provide the engineer with a criterion which will generally predict the effect of slots on the spinning characteristics of a new design, with a characteristic that of slots are to be used the system yawing moment parameter must be held below a predetermined value.

► **Research**—Recent tests by the National Advisory Committee for Aeronautics indicate that the adverse spinning characteristics of slots are not a function of the slot's yawing moment parameter.

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Douglas model of "four engine airplane" with sliding gear beneath inboard engines, used in nondestructive landing tests at the NBS.

## Landing Impact Vibration Studied

National Bureau of Standards undertakes long-term investigation of transient vibration of plane structure in effort to help design.

An extensive investigation of the transient vibration of aircraft structure as a result of landing impact is in progress at the National Bureau of Standards under the direction of Dr. Walter Rugh.

This vibration problem has caused several aspects with the advent of large transport planes. Craft of earlier and more rigid types were designed for landing conditions by treating the airplane as a rigid body subjected to an impact force which could be obtained from drop tests of the gear.

Large transport planes designed on this assumption, however, showed an alarming tendency to develop failure in the wing or tail, which could be attributed only to transient vibration of the structure excited by landing impact.

**Analysis Difficult.** Analysis of the transient during landing impact is complicated by the fact that those in solve many natural modes of vibration of the airplane, and response in each mode depends on the force-time curve at the point of contact. For a given airplane, the curve will vary from one landing to the next.

**Suggested Approach.**—In view of this complicated fact and Baggepohl's proposed in 1964 an extensive method approach to the landing problem. The vibration of the structure in a given mode is added to that of an average local lateral coefficient. The maximum amplitude in that mode is situated first as envelope of "dynamic response function" which bounds the response to specific force-time curves of any shape that can be expected in the landing

An upper limit to the upward amplitude is obtained by adding up the maximum amplitudes in the various modes.

The theory provides a straightforward and rational means for estimating vibrations during landing impact. Its application in design seemed suitable provided that it could be decided by landing tests under carefully controlled conditions.

**Laboratory Studies.**—Unfortunately there is no way of making controlled landings of full-size airplanes. The stresses set up will vary from landing to landing depending on the pilot's technique, attitude of the plane, wind direction, and irregularities in the landing strip.

Since controlled landings to check the theory are best made in the laboratory on a model of the plane, the Bureau of Aeronautics requested NBS to conduct such tests.

It was pointed out that the tests should check, in particular, the adequacy of the following assumptions made by the theory:

1. Maximum amplitudes in the various modes of vibration may be added without regard to phase.
2. The most severe impact force-time curve during the landing approaches, or effect, one of the curves used by Baggepohl and Baggepohl to derive their envelope of "dynamic response function."
3. It is sufficient to confine the analysis to the first few modes of vibration.
4. The force-time curve of the landing gear is independent of the flexibility

of the structure of the airplane.

**Flexural Transients Studied.**—The work was started with a study of flexural transients set up in a highly idealized model of an airplane. The model consisted of a tapered box beam fixed later from aluminum alloy sheet and angles.

Distributions of the forces were chosen to give a distribution of mass and of flexural rigidity approximately proportional to that for a full-scale transport airplane. The "engine masses" were mounted symmetrically on the model so as to move down without friction between them when they were dropped vertically to remove a landing impact below the C.G.

The model contained an shimming gear below the fuselage with means for adjusting the time history of the impact force acting on the wing. Measurements were made of impact force, spring force, and damping force transmitted by the gear, landing transients at two stations, and accelerations at the leading edge.

**Model Held Stair-Step-Release** in a "stress free" condition is important to prevent vibration of the wing during free fall, caused by the sudden release of gravity forces which produce initial motion of the wing under its dead weight.

The model was initially held in a perfectly static state condition by supporting at several points and adjusting supports until the forces caused by the dead weight of the wing were negligible.

The model was released in its stress free condition by removing all supports

one by one from under the wing at an acceleration greater than 1G. Flexibility of the test was simulated by sliding rubber to the synthetic "landing field" upon which the model was dropped.

**Forces, Moments Measured.**—Landing impact force, and the damping and spring force transmitted by the gear were measured with piezoelectric strain sensitive wire. Bending moments in the wing were measured with strain gauges and acceleration at fuselage was measured with one of the piezoelectric acceleration packages developed by Dr. Baggepohl.

Records of these quantities were obtained under various conditions of landing ranging from a "soft" landing (impact of relatively long duration) to a "hard" landing.

**Comparison Made.**—Observed bending moments and accelerations were compared with values computed from Baggepohl's theory. In addition, a more exact analysis, taking account of phase differences, was made for one of the actual impact force-time curves.

The comparison showed that the values obtained from the theory were 15 to 14% percent greater than the measured values, and that the error caused by neglecting phase differences was negligible.

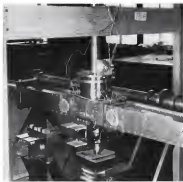
It was concluded from the tests that the theory would give a fair estimate, generally on the safe side, for the transient vibration in an airplane subjected to nondestructive landing impact loading to flexural vibration of the wing.

Measurements on actual landings of large transport airplanes have failed to substantiate this conclusion. In certain cases the measured accelerations were much larger than those computed from the theory. It has been suggested that this might be due to the frequency of the envelope of impact forces, and that it might be due to subsidence between the landing gear and the flexible airplane.

**Discrepancies Analyzed.**—The first explanation was studied by including the effect of unsymmetrical landings on the impact force-time curves or "impact loadings" which lead to the envelope curve.

It can be shown that unsymmetrical two-point landings will create maximum natural modes of the wing with a forcing function that can be approximated by a full sine wave.

Response to a full sine forcing function was found to be about 50 percent greater than that given by Baggepohl and Baggepohl's envelope curve for a case of impact approximately equal to the period of the mode considered. This provides one possible explanation for the observed discrepancy



In NBS landing impact tests, "four engine airplane" is released in stress free condition by removing several supports from wing at acceleration greater than 1G. Flexibility of test is simulated by sliding rubber (shown center) to synthetic "landing field."

any between measured and computed accelerations during actual landings.

Second explanation was studied by determining the effect of bending of the wing in its fundamental mode on the forcing function applied by the shimming landing gear used in the one point landing tests of the model wing. The wing of the plane was supported by a cantilever beam with a tip mass. Effect of flexibility was increased by increasing the proportion of mass at end of the tip. In each case, the force was determined when the model made contact with the ground at a given velocity of descent.

The experimental solution for the effect of flexibility was obtained by measuring the impact force for drop tests with masses at the wing tips and with all mass at the leading edge. Tests and analysis showed that the flexibility reduced the maximum force at the leading edge. The reduction was slight, less than 10 percent, in nearly all cases.

It was concluded that the observed discrepancy between calculated and measured maximums during unsymmetrical landings should not be attributed to wing flexibility.

**Study Continuing.**—Investigation of landing impact is continuing along both experimental and theoretical lines. Unsymmetrical one point landings have been made with the same model

equipped with shimming gears underneath the two inboard "engines."

Recorded transients in these on symmetrical landings set long time period with theory.

**Other Checks.**—Tests are being planned to study transient transients set up in a model with "engine masses" air forced relative to the structure of the wing.

Additional tests for studying the transients set up during the shimming of a model wing airplane on water are also planned.

Eventually it may be necessary to extend the work to a study of transients created by the horizontal components of landing force which "spin up" the landing wheels. Severe landings indicate that there may exist serious vibration of the airplane.

Along theoretical lines, methods are being investigated by the Bureau to determine the latest work of non-pertinent natural modes of vibration of the plane structure and to compute the impulse to land impacts which are cyclic vibrations in many natural modes.

### References

1. "Biot, M. A. and Baggepohl, R. L. Dynamic Loads on Airplane Structures During Landing." NACA W-1000 Report W-10.



Wide side wings across a feature of Canadair's "flying wing" Learjet, designed for heavy freight in turboprop.

## Airfoil Fuselage: More Lift and Cargo?

Bombardier "flying wing" tested in Labrador with backers claiming it has exceptional cold weather performance.

First Bombardier "flying wing" aircraft, the Learjet, has proven itself in backcountry, as a cargo transporter for operations in extreme cold weather. The transport has been functioning in high-altitude operations in northern Quebec and Labrador under charter by Canadian Pacific Airlines. CPA has been doing work for the Bombardier sales development network. In a month of winter flying, it has carried a total of 251 tons of cargo, largest loads being 6000 lb. most loads being close to three tons.

Bombardier Canadair Aircraft Manufacturing Co. Ltd., a subsidiary of Canadian Car & Foundry Co. Ltd. The latter now active in various aircraft production and also is maker of the "Newcomer" light-turboprop. **►No Cold Weather Limitations:** No winter storm is given by Canadair of action for the Learjet, but operation of the prototype by CPA tends to tend to show that it is the Learjet's winter weather is not a problem for this craft.

Bombardier Canadair Aircraft Co. Ltd. has applied for a contract to become the Canadian Air Transport Board for operations from Montreal on the north shore of the St. Lawrence River, into Labrador, the same location from which the prototype was operated under the CPA charter.

**►Fuselage Features:** The Learjet is of a somewhat conventional design. It was an airfoil fuselage which is particularly good for the lift for the craft, and which a large cargo capacity.

Fuselage is wide enough to allow for seating of 28 passengers in four rows with two aisles. Space between passenger compartments sections permit large cargo in a 7 ft wide space capable of accommodating a volume of 340 cu ft.

As a pure cargo transport, the plane has useful cargo volume, approximately 2000 cu ft. **►Basic Data:** The craft has an overall span of 56 ft, length is 54 ft, and height is 25 ft 6 in. Body width is 20 ft, length 30 ft, and height 7 ft.

It has a gross weight of 25,000 lb. on two 1500 hp passenger version, or 11,000 lb. as cargo version. **►Performance:** In forward and above the wing. Provision is made for a crew of three.

Engines and fuel tanks are located well apart in this aircraft, sections of the structure, to lower the hazard.

**►Performance:** The plane is powered with two P&W R2800s, has maximum speed of 215 mph at 14,000 ft, cruising speed of 197 mph at 10,000 ft, and takeoff of 2.8 mph. Service ceiling is 22,000 ft. As a cargo craft it has a range of 2200 mi. as a passenger plane, 1700 mi.

**►Structural Advantages:** Design of the aircraft offers a greater economy in maintenance than that of conventional type. The company claims the body section is constructed entirely of flat sections requiring no formers. This is supposed to simplify and lower cost through a reduction in the number of man hours expended.

Tooling and the costs major factors are also correspondingly reduced down a claim.

**►Structural Aspects:** Structural strength of the Learjet is derived largely from a series of bulkheads throughout the fuselage section, which share primary and secondary structural loads. It is stated that having an interior is thus achieved, resulting in a lower base weight than is found in conventional craft of similar size. This enables carrying higher payloads within the gross weight category.

**►Operational Observations:** The dual wheels have proved to be of great assistance in operating from compacted snow or from underlaid or muddy fields. They also give better braking under icy conditions.

Wheel wells are accessible to the crew while in flight, thus enabling minor adjustments to compensate in the field and on.

Flaps can be retracted in flight and in the event of trouble before the crew can manually release the landing gear at the field. The gear extends by gravity and automatically locks. Locking can be visually checked without depending on indicators.

For extreme cold weather operation it is claimed that the Learjet's cabin heaters are so located that heat can be applied to the radiator system thus eliminating the need for periodic ground checks or special fuel to warm cabin heating.

**►Landing Facilities:** In one cargo version the plane has side latches under the wing panel and also at fuselage rear bulkheads at the side of the fuselage are 700 cu in. wide and 11 in. high. These landing latches provide an unobstructed opening. It is said by 6 ft high. Tracks can be located at under the fuselage between the landing gear and height can be located without having to turn, straight into the craft.

In addition there are two conventional doors put behind the wing panel. The rectangular shaped freight area thus offers space convenient, and once the width is the major dimensions, space loading can be utilized. This is reported to make the location of the load be less critical than in conventional designs.

Canadair has recently sent a circular to prospective long-haul freight shippers in Canada, the United States, and Latin America, requesting information on various operating requirements. This is together with data for obtaining production of the Learjet for rugged freight service.

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## NEW AVIATION PRODUCTS



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### Thermoplastic Material

Aviation applications are seen for thermoplastic "Vesulite" announced by United States Rubber Co., 1230 6th Ave., N. Y. Material is stated to be non-corrosive and stable under changing atmospheric conditions, with high electrical insulating properties and low rate of heat conductivity. Tough, lightweight, and formable into compound shapes as large as 5 x 10 ft., resistance can be made in thicknesses above .025 in. Coating, drilling, and punching can be accomplished on ordinary wood or metal working equipment.

### Fog Light

Mass penetration of 1000 yd. under zero fog conditions is claimed for new Navy red-orange airport marker light produced by DuPont Laboratories, Hollywood, Calif. Light is commercial development of design used by Navy for fog signaling during war. Quartz lamp in and no produce were highly approximating 50% American made. Device can utilize 110, 200, or 440-v. circuit.



### Panel Instruments

Suitable for use in aircraft, radio, power supplies, transmission, and amplifiers are the 3 1/2-in. panel instruments offered by Motor Instrument Div., General Electric Co., Schenectady, N. Y. Elimination of air blast and distracting pointing from scale, together with lens-type pointer and large numerals, are intended to provide accurate readings



### Fire Fighter

Functioning trailer, designed and equipped by National Foam Systems, Philadelphia, Pa., for airport use, produces flame-retarding "Aero-foam." Filled by pop or pickup truck, trailer has two compartments each carrying 250 gal. of water and 25 gal. of foam-making liquid to yield 750 gal. of extinguisher. In test demonstration with simulated crash or leakage fire, it's stated that unit's pump delivered 800 psi pressure and extinguished flames in 2 1/2 min.

### For Differential Pressure

Particularly applicable to laboratory and flight testing of jet turbine engines, where sensitive differential pressure measurements are required, is pressure level by Kellogg Instrument Div., Spang Co. Inc., 3035 45th Ave., Elmhurst, N. Y. Instrument has differential range from 0 to 300 in. of water and working pressure range differential between inside and outside of case not exceeding 60 psi. It is calibrated so that each pointer makes one revolution for every 10 in. of water. Gage is capable of measuring differential pressure as small as 0.1 in. of water with non-sponding pointer up movement of 0.075 in., and is compensated for temperatures from -30 to +50 deg. C. For flight

testing, where readings of instrument are photographed, gage is available with etched glass, reducing reflection.



### Airborne Motor

New model constant speed d.c. motor for use in smaller ballistic range equipment and similar applications where size and weight must be held to minimum, is offered by Anglo Corp., 4234 Lincoln Ave., Chicago, Ill. Motor motor linear and aluminum induction gear. Capacities: 2 1/2 to 2 1/2 in. Wyrht is 10 cu. Meter delivers solar and magnetic drive principle of clutch rag used. Available for use on low or battery voltages from 1-110, motor has motor shaft speed of 960 rpm.



### Aerial Camera

For commercial aerial photography, new lens held 5 x 3-in. camera, F-275, containing Bausch & Lomb 15.5 20-in. telephoto lens, is made by Fairchild Camera & Instrument Corp., 5500 Van Wyck Blvd., Jamaica, N. Y. Device's long focal range gives large-scale photos and medium-size negatives. Its exposures permits less exposure than 1/175 to 1/175. Focal plane shutter is adjustable for speeds of 1/175, 1/75, 1/25, 1/20, and 1/10 sec. Shutter action view finder holds up when not in use. Complete with lens camera weighs 20 lb., is 15 in. long.



## SALES & SERVICE

## Air Education: JAYCEES Project

U. S. Junior Chamber of Commerce gives its highest priority to local drives to increase aviation activity.

A nationwide on-again education campaign being undertaken by the U. S. Junior Chamber of Commerce and its local service group chapters is expected to benefit the aviation industry—in varying amounts depending largely on local support it receives. It is the Chamber's master one aspect for 1945.

It offers, apparently, for local airport operators to get strong service club backing for their enterprises and considerable publicity — which would be difficult to obtain without the campaign. However, probably the major benefit to be derived will stem from proposed airport subsidies on aviation as education, which the national JAYCOF organization has outlined for use of its local groups.

**Teacher Training**—Suggested institute programs is planned for school teachers in the local schools, with the intention of giving them a better grasp of knowledge about aviation in general to their people. In addition to talks by aviation experts the institute program calls for introduction of the teachers to Weather Bureau operations, communications or traffic control, administrative office, Link trainer, ground stations, aircraft display, and aviation music and movie shows. Free local flights will be furnished for the teachers.

Regional CAA air education specialists are instructed to cooperate in assigning these institutes, and the local service groups are asked to assist any of the air education departments of the major airlines. If the airlines are unable to arrange for group flights, the national bulletin suggests, the local fixed-base operator will no doubt be quite willing to take the members aloft at reduced rates.

**Bibliography Ready.**—Screens of the animal vertebrae may be followed by shell screens for public officials, and civic groups, adding to their six own screens. But after the first minute for the teachers, it is suggested that the local Junior Chamber of Commerce take on a continuing project: the supplying of adequate and up-to-date teaching materials for an education in the schools. A bibliography of teaching materials is available at the U.S.

JCC office, Tulsa, Okla. As a bonus with the school program it is suggested that model airplane clubs be sponsored, both as a youth recreation project and as an aid to an education in the schools. National Institute of Air Age Activities, Chicago, has offered to send the local groups in sections on model clubs.

The national office is also supplying an aviation information list, which contains instructions on procedure for local radio and newspaper problems for the aviation training program. The list contains a series of sample 15 min. radio scripts which are adaptable for local use. Series includes a discussion of fundamentals of flight, an interview with a state aviation official, a discussion of how to provide aviation



WINGED CARTONS

Marlboro Chisel Corp. has introduced a new cigarette, wrapped container which could be useful to agencies called upon in dire emergency supplies to consumers isolated by floods or other disasters.

The winged cutoles require no parasites. When dropped, the pupa opens up wing-like and the ant trails like a top in the course of its descent to the ground. It is easily controlled of Blackhead.

arranged facilities for the local community, a dialogue on how to organize and operate a flying club, a program on aerobics, and an interview with an air age education teacher from a public school.

**Armstrong Project**—Armstrong, of north in the local community is urged to another project for the Junior Chamber. Each town should have at least one member and each city should have at least four in its suburbs. The local Junior Chambers are urged to spend more money to get the members put in, after consulting with CAA to get instructions on standard specifications.

Joined "agencies who can render valuable cooperation in aviation projects" are state education departments, state aviation organizations, CAA education and counseling representatives, Institute of Air Age Activities, Civil Air Patrol, Air Scouts, Wing Scouts, educational directors of airlines, manufacturers, Association of College Air Administrators for Air Age Education, Personal Aircraft Council of Aircraft Industries Association, U. S. Air Force, Air Force Association, Flying Parents Association, and several other local service clubs.

## Garside Named To NATA Post

Joseph Caruso, president of Wiggins Airways, New Bedford, Mass., has been elected vice president of the eastern division of National Aeronautics Under Association, succeeding F. Leslie Mandes, Buffalo, N. Y. Armstrong Corp., who resigned.

Executive committee of NATA also has named Jean H. Dufosse, to assist NATA Washington headquarters in conducting a long-range public relations program. Dufosse was an AAF lieutenant colonel in World War II, and recently opened a public relations office in Washington after serving as Director of *Aviation for the City of Dallas*, and as chief industry and CAA press person.

Plans to hold the next NAFA convention in St. Louis, Nov. 5-10, in conjunction with the meeting of the American Distributors and Manufacturers Association, were approved by the executive committee. Show committees of the two associations are discussing plans for a joint exhibition where either may be held in St. Louis in conjunction with the meetings. David Krutz, St.

Lower food-harvesting operators, heads the NATA show committee and Richard Bombardieri, vice president, Benschach Corp., Lancaster, Pa., heads the ADMA show committee.

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## 57 Varieties of Industrial Flying

Analysis by CAA of types of flying done in non-scheduled commercial flying indicates that several thousand insects are engaged in a total of more than 100 flying jobs, with 57 of these activities listed as most enterprises.

CAA lists the following types of operations, with the number of operators, and the number of planes and in each:

- Spraying against forest fire "stop drops," 46 operators and 121 planes, plant pollination, 40 and 9% crop desiccation, 120 and 373, drenching, 461 and 1501, spraying 285 and 710, seeding, 421 and 908, sight surveying, 91 and 328, glider towing, 51 and 115, winging and surveying, 56 and 92, aerial photography, 174 and 256, forest patrol 88 and 141, highway patrol, 10, and 22, power line patrol, 83 and 132, pipeline patrol, 78 and 93, oil well service, 115 and 325, ocean research inspection, 45 and 101, mail delivery service, 145 and 108, mail and newspaper delivery, 53 and 46, oil drop to mine, 105 and 191, fence patrol, 444 and 655, checking cattle, 456 and 477
- Threshing food and equipment, 151 operators and 284 planes, removing equipment, 24 and 25, gate service, 60 and 81, corse towing, 328 and 511, cable towing, 9 and 12, towing tow planes, 230 and

412, landing wing food, 50 and 76, determining windfall and water levels, 26 and 43, fire and game patrol, 56 and 50, telephone line patrol, 10 and 17, drenching, 34 and 56, winged survey advertising signs (gliders from lighting) 23 and 35, refuse line (gliders) advertising, 35 and 39, manhandling, 73 and 151

• Mosquito control, 55 operators and 165 planes, spotting wildlife of 20 and 42, shooting birds and stream with fish, 34 and 47, air police, 104 and 164, trap patrol, 6 and 13, for transportation, 11 and 19, forest fire fighting, 67 and 320, herding livestock, 31 and 45, helicopter operations, 51 and 45, checking below land, 136 and 261, anti bush aground, 26 and 25, drenching crops, 271 and 370, oil search (aircraft), 2 and 3, track line patrol, 1 and 1, transporting dogs, 1 and 1, spreading fertilizer, 25 and 51, checking windmills and waterfalls, 300 and 200, trap aground, 3 and 3, checking equipment, 14 and 14, oil company business transportation, 15 and 42, herding crop (road) from track, 1 and 1, road control, 20 and 20, and non-scheduled, 47 and 45

Richard P. Fieder, chief of CAA's non-scheduled aircraft operations division, points out that many operators use a single plane

part, it has been a 50-80 state wing plan. However, whether the state will not participate in land acquisition at larger cost.

The non-scheduled also will be permitted to finance the installation of long-range landing fields. This will enable smaller communities to come into the state airport program.

Along with the new policies for airport development, the legislature advisory committee approved new procedures totaling \$46,955 for airport work in the state the next year.

### Islands Airmarking

A statewide airmarking program for Idaho has been completed, and contract let to Sign Unlimited, Boise. County representatives are having 125 sites in the upper Snake, Chalk-Salmon and north Idaho areas, steering emergency in route suitable for night flying. Sites will begin work in May 1 marking areas of cities and distances and direction to the nearest airport.

A check by the state department of all Idaho towns shows on the Federal map, 200 and 200; major cities, 1 and 3, checking equipment, 14 and 14, oil company business transportation, 15 and 42, herding crop (road) from track, 1 and 1, road control, 20 and 20, and non-scheduled, 47 and 45

Richard P. Fieder, chief of CAA's non-scheduled aircraft operations division, points out that many operators use a single plane

### Vagabond Catches On

Paper Aircraft Corp. has reported March shipments of 72 two-piece 67 hp PA-15 Vaga bionds, five out of five plane out of production, at \$1900 from. Local, Hanes Pa. The showing is unusually good for first month delivery of a new plane, and indicates that price consciousness is still a major factor in selecting airplanes. Paper also delivered 45 PA-11 tandem twins, and 7 of the PA-12 three-seater Super Cessna, for a total of 127 planes shipped for the month. This probably puts the local Hanes company into first place for number of planes delivered in March. Last month's shipments reported were for the 8th and 9th, 90. Paper expects to have the new PA-11 four-place Vaga bionds available, beginning in May.

### "Sky Merchant" Returns

Leo Steward, GM of SDC, a firm in St. Maryland, has returned from a 44,500 mile 100-day trip through South America, Asia and Africa, with six on board. The American businessman who was to go fast landings into land information and become acquainted with world conditions. Heading the group was J. H. Redford, Jr., president of the Air Supply Co., an Elko subsidiary. Other passengers were company executives.

More than 40 stops from Miami, Fla. to Mexico, India, French India, China, Australia, Iraq and French colonies were included by the Sky Merchant, which carried a crew of seven.

The aircraft was fitted out as a "big show room," complete with display of Atlas motion tires, batteries and accessories. The aircraft was specially designed to accommodate passengers and dealer training material.

The flight left Miami Jan. 14, and returned in New York, April 15.

### Piedmont to Supply Spray Equipment For Indo-China

Piedmont Airmen, Inc., Westminster, N.C., has completed an agreement with the French-Indo-China Government to provide spray equipment and dealer training material. Under the agreement, Piedmont is to furnish the aircraft, maintenance and install the special spraying equipment, and then the aircraft to the West Coast where they will be used for spraying.

## BRIEFING FOR DEALERS & DISTRIBUTORS

**TAYLORCRAFT PRICE CUTS**—Reduction of dollar price of the 1943 two plane \$5 hp Taylorcraft from \$2345 to \$2295 has been announced by C. Taylor, president, Taylorcraft, Inc., Alliance Ohio. Price reduction is passing on savings resulting from a reduction by Continental Motors in price of the 83 hp engine.

**THOSE TOUGH NAVIGATORS**—As a sequel to the recent story about the Navion and the Jackson (Aviation Week, March 25) Ryan H. Wagner has sent in a note about a Texas business where the helicopter-like everything else as Texan appears to have been taken down where else. Clipping from the Austin papers described the helicopter as "a small plane with large wheels having a diameter of 11 ft." One witness was smooth, black knuckled in charged robes, and Austin schools reported more than 600 wrecker plane crashes. Oh yes, there was something in Wagner's note about some airplanes parked at Muscatine Airport. The helicopter-owned plane and the ones which had fabric-covered control surfaces took a terrific beating from the heat and when the storm began, only one of the 21 planes survived with still airworthiness on account of its rugged construction. "These planes are given us to what kind of an aerial flow place notwithstanding at San Diego that one airplane was."

**4000 SAFETYLIGHTS INSTALLED**—Since the first commercial installation of SafeFlight light warning radiators two years ago, there has been no record of any airplane equipped with such an indicator being involved in a stall or spin accident. Dr. Leonard M. Gossard, in charge of the device, reports following analysis of CAA, AFPA, and insurance company records. CAA accident statistical index shows that over one airplane in every 170 is involved in a stall stall spin accident. The indications have been that the device has been put on 4000 airplanes flying from 65 hp two-place trainers to large airliners and jet fighters. As the first three 4000 planes complete a year's service, if the percent good record continues, the indicators will have prevented approximately 33 fatal accidents. The Safe Flight Instrument Corp., White Plains, N.Y., reports that sales of the stall indicator have been doubled in each of the first three months of 1948.

**AIR ASSOCIATES' NEW STORE**—Visual merchandising laboratories of Goodfear, Inc. & Robert Co. have designed the new Air Associates Inc. store at Dallas. Air Associates, monthly, has been distributing Goodfear products since it started business 21 years ago. The new store is a 10,000 sq. ft. store, divided into 35 departments, where thousands of items for the pilot, mechanic and the plane are shown in wall and floor display cases and fixtures. Adjacent to a carefully planned stock room, providing accessible storage for items on sale. R. E. Kiser, Air Associates vice president, and also president of Aviation Merchandise Manufacturers Association, said that the new store is one of the best equipped and well stocked aviation parts and equipment centers in the world. The Goodfear visual merchandising service is part of a service organized by the company for its sole two dealers but recently extended to dealers and distributors of Goodfear aviation products in other areas.

**LIGHTPLANE FIRE EXTINGUISHER**—Vico's Air Service, St. Cloud, Minn., has been named national distributor for the Rex Kedge packaged fire extinguisher system for lightplanes. System includes a battery of carbon dioxide gas which can be released from a cockpit control to flood the engine compartment and fuselage. Original experimental installation was flown in a Cessna. Device is now available for Cessna, Mooney and is being demonstrated in a flight by Everett White, who is making a national demonstration flight tour. Kits will be made available for Cessna, Mooney, Beech Bonanza, and other planes. Complete installation adds \$5 to the expense and sells for less than \$200.

**LEASING LEADS TO SALES**—A new plan for leasing new planes on a monthly basis is leading to sales, Aviation Market Newsletter, Dallas, reports. Thus, as outlined by a dealer, offers to lease a \$8000 airplane for one month of \$1000 a month, provide in advance, permitting customer to terminate the contract at any time without obligation. Customer agrees to carry full insurance and maintain aircraft and its equipment in good serviceable condition. He has option of purchasing the airplane at any time during the six months by applying to the full price of his monthly payments. A finance company reports it is handling two or three such lease contracts a week, with Norman and Bonanza dealers, selling such prospects with excellent credit rating.

—ALEXANDER MCGURLEY

### Arrival Notification

Solution to a problem which long has proved expensive and a headache to the air-traffic controller has been suggested in a plan submitted to Western Union Telegraph Co. officials. Proposed is to permit the cross-country flyer to use a single word "arrival," and by using, back to the point of departure, at a special rate similar to the "through" arrangement which the telegraph company discontinued during World War II. W. J. Bean, Colorado State Aeronautics Division, Denver, is asking for comments by other state aeronautics divisions on the proposal and will transmit a contract to Western Union, which has indicated it will agree to "improve" the present

the report and the cost of the city for the incident and customer, according to Houston L. Martin, Texas

Leading hotel in the downtown business for the route with departure every hour from 7 to 10 a.m. and from 10 a.m. to 4 p.m. Martin Field, has been removed, 1500 and 1400 ft. long, 340 and 190 ft. wide. It has a flying school, report station and cluster

### Liberalize Airport Policy

"Two major changes in policies of the Massachusetts Aeronautics Department have been approved by the Legislative Advisory Committee on the Massachusetts Legislature, as requested by State Aeronautics Commissioner Leslie L. Sclafon last

In building reports about the state, the commissions will be permitted to make major changes in the basic two-thirds controlled by the state and one-third by the municipality. In the



COMPACT L-13

A house in low airport a lightplane type can be demonstrated in the new photo of the Consolidated Value L-13 home plane at the Air Force. Folding wing and tail section make it easy storage and handling and, adapted for a personal aircraft, it is the most compact of home planes (L-13)



## Now! An Even Bigger, Better Flying Boxcar —The Fairchild Pocket C-119

Something new in the air.

Out of the tried and proved first plane ever designed specifically for emergency use, has come the latest creation of Fairchild engineers—a super Pocket.

Like the original C-62 Pocket, the C-119 is a product of close cooperation between Fairchild, the Air Force and the Troop Carrier Command.

With increased payload, speed and climb,

the new Pocket can transport 12 tons of men, equipment and supplies 1500 miles a day. As an ambulance plane it is equipped to carry 36 litter patients and attendants.

This new Flying Boxcar incorporates improvements and modifications proved in thousands of hours of actual service. All in all, it is flying evidence of an air-transportable Army—a work of Fairchild engineering and research skill.

**Fairchild Aircraft**  
Division of Fairchild Engine and Airplane Corporation, Niagara Falls, Maryland



## FINANCIAL

### Mail Rates: Self-Sufficiency the Key

In proposing new rates for five major trunklines, CAB feels way toward long-desired relative yardsticks.

The recent Civil Aeronautics Board mail rate action on the five major trunklines is likely to result in a controversial issue for some time to come.

The Board proposed increased mail rates which are assumed to range from 59.70 to 65.50 cents per ton-mile, compared with 45 cents, the prevailing rate for the "Big Five." Northwest's effective rate was increased to 70.95 cents per ton-mile, contrasted to the 60 cents now being paid. The inclusion of Northwest in the same proceeding reveals that carrier's intention to a transcontinental airline. The current Board action creates a new grouping which will now become the "Big Five."

**Disappointment**—This latest move is viewed as a deep disappointment to the airlines involved. They had had expectations of substantial mail pay raises. In all instances, the current inadequately will accept the new rates offered on a temporary basis until TWA, already late indicated they will seek a higher service through permanent rate proceedings. Northwest probably will do the same. Eastern and American must likely will take exception to the Board's findings but accept the rates proposed by the Board without further proceedings. A full date permanent rate proceedings augurs a long and involved process and more time rate change before a final determination is made.

It is in their permanent mail rate proceedings that the clerk in Philadelphia between the Board and the airlines may become once again preoccupied. **Self-Sufficiency Concept**—The Board contends that very basic to the concept of self-sufficiency for the "Big Five." On this premise, it is felt that a mail rate offer only an opportunity to earn a fair return and does not guarantee that such a return will be earned as the Board has concluded that the five airlines indicated are self-sufficient in character and do not require rate subsidy mail payments.

The comment is further advanced that the adoption of more modern and more efficient equipment should hasten the development of self-sufficiency and enable the leading carriers to earn more profitable operations without an income to the Government for financial support.

In making its determination, the Board classified a series of basic characteristics into rate and volume factors, density and plane utilization factors and operational factors. Thus, in effect, the Board is using some operational yardsticks which are quite fundamental. It is felt that little fault will be found with the method as conclusions reached as the standard approach used.

**Rating**—The Board's action is rated as respect to the separate factors, with relative positions determined for the individual carriers. This entire process represents a unique attempt to evaluate the individual characteristics of the airlines, and in a sense may be considered the measurement of relative "yardsticks" which may be used in the regulatory process.

Eastern and out of the industry, has been claiming for the last two years. The Board concluded, however, that "measured as no accurate base exists for weighing the relative importance of the individual characteristics, any in a very desirable light at best a neutral one. Instead of losing competitive mail revenues during back to end 1947, the company will only keep the margins for about the first quarter of 1948. The plan will amount to only about \$200,000 after tax adjustments and may be a small price to pay for its status in not paying for support.

**Forecasting Effect**—The decision may result in the trading and the value of proposed lowering programs for United and TWA. In its current pay statement to stockholders, United covered very heavily upon added mail pay as an integral part of its equity financing scheduled at a favorable rate last opportunity.

The Board issues the door opens to further review by suggesting that it might be more accurate for the carriers to seek overall adjustment in their general traffic as well as in the mail rate. In other words, this is a suggestion that general business may be made as the passenger and air freight rates and that doesn't necessarily mean, however, that it might be made in volume adjustment mail revenues. —Selig Altschul

	Estimated	Current
American	\$122,000	\$97.25
Eastern	\$10,000	\$10.00
Northwest	\$10,000	\$10.00
TWA	\$10,000	\$10.00
United	\$10,000	\$10.00

The carriers (their earnings are subject to joint charges such as interest on debt, preferred stock dividends and income tax payments). Further, common stock and options, where exercised, will have an important effect.

**Not Retroactive**—It is noteworthy that in no case did the Board grant these new rates retroactive to the original date of filing by the carrier as required. The Board proposes to make these new rates effective from Jan. 1, 1948, except for American Airlines whose rate takes effect Apr. 7, 1948. Further, only the domestic services are involved in these new rates. United's San Francisco-Albuquerque flights are not considered at all in this proceeding and will be subject to a separate determination.

Measured in terms of overall payment in relative mail revenues, Eastern and Northwest appear to have been the chief beneficiaries. Ironically enough, these two companies are in less need of such mail pay assistance than the other three lines.

Eastern is at July 8, 1947 applied these requested mail pay rate but then 60 cents per ton-mile, assuming the right to request a higher rate at a later date. It received the highest award, 65.50 cents.

American's strategy in receiving the sole carrier in the entire air transport industry is refusing from applying for a mail pay increase, has placed the company in a very desirable light at best a neutral one. Instead of losing competitive mail revenues during back to end 1947, the company will only keep the margins for about the first quarter of 1948. The plan will amount to only about \$200,000 after tax adjustments and may be a small price to pay for its status in not paying for support.

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## AIR TRANSPORT

### Third Crewman: Flight Engineer

CAB orders an addition to flight crews on the DC-6s and Stratocruisers after Dec. 1. DC-4s may be affected.

By CHARLES ADAMS

The Douglas DC-6 and Boeing Stratocruiser have been tagged officially as "three-man aircraft" requiring not just a pilot and copilot, in addition to the pilot and copilot.

New regulations promulgated by CAB also permit the Civil Aeronautics Administration to require flight engineers on certain aircraft, including the DC-4, under circumstances where such crew members is essential for safe operation. The Board's action is expected to cost airlines of dollars at a time when the national carrier is struggling to bring their expenses to the near minimum.

**► Aerobically Made**—In adopting the rule changes, CAB avoided both Part 61 of the Civil Air Regulations, which applies to domestic flights, and Part 121, which deals with foreign and cross-country flights. The new provision reads: "After Dec. 1, 1948, an aircraft having a flight engineer certificate shall be operated as a flight engineer aircraft on all flights on which more than 80,000 lb more engine takeoff weight, and on all other flights on which more than 15,000 lb more engine takeoff weight, when the Administrator has found that the design of the aircraft and the type of operation is such as to require engine personnel."

CAB said it related the new rule to Part 1, 1948, as being "wholly advanced to comply with new engineering data." **► Headage Rule**—The decision followed public hearings on the issue last fall (Aircraft News, Oct. 20). CAB and testimony in the proceeding indicated that is occupational flight engineers, by meaning certain additional duties, will enable pilots to concentrate on the actual flight of the aircraft, radio operations and receipt of traffic control clearances "particularly during instrument conditions when this is imperative."

The industry through the Air Transport Association, strenuously opposed all members of the Civil Air Regulations requiring additional flight crew members. ATA asserted that crew assignment "is inherently the prerogative

of management." Lodging proposals for additional crew members were the last. Pilots' Association and airport operating flight engineers, radio operators and navigators.

**► Resolution Adopted**—Pilot's have not been as complex as the need for additional flight crew members on the larger transport planes. But ALPA at its last convention adopted a resolution: "Resolved that all two-engine aircraft be required to carry a crew member whose exclusive duty is that of flight engineer."

ALPA Vice President J. E. Wood said his union had become concerned about the increasing use and complexity of modern aircraft and the difficulty involved in their operation, need present unimpaired traffic control procedure. He declared evidence of both the DC-4 and DC-6 as to rule that many important loads and controls are hard to check on a turn. Wood declared the DC-6 is only slightly less complicated than the DC-4.

**► Consideration Offered**—The ALPA official explained that the Lockheed Constellation is equipped with a complete flight engineer station. Its tail (out of 120) even requires the attention of the Constellation flight crew, it is possible to delegate 99% of the flight engineer. They requested the basis on the pilot's at a Constellation (which is licensed to fly only with a flight engineer) is not such great fear that of DC-1 pilots.

ALPA urged CAB to adopt a regulation requiring all two-engine transport planes operating with a two-man crew to add an additional crew member (even a dual pilot would do) and to designate a rule that all two-engine aircraft operating all two-man crew to have a status for each additional crew member. The changes adopted by the Board are not so sweeping, especially with reference to the DC-4 aircraft.

**► Better Observation**—Wood said an additional crew member would be valuable on planes which (like the DC-4 and DC-6) do not have a thrustor provided in the original design. He declared that more pilots than the type

of seating arrangement where the third crew member is able to provide an additional pair of eyes looking outside the cockpit. ALPA said, however, it is not willing to accept an order in pointing up the need for the so-called extra pair of eyes.

Admitting that its representative of an additional crew member would cost considerable money, Wood stated that the overall cost of flight crews for fast, two-engine transports is less per passenger mile than for two-engine aircraft. And TWA has been the pioneer in using flight engineers and has been financially successful.

**► Experience Required**—TWA has introduced flight engineers on its two-engine Boeing 707 transports since those aircraft were in service in 1949. The original five Stratocruisers are still in operation, some having suffered a major accident.

Some pilots and government officials have claimed that DC-6 accidents last fall might have been avoided had a flight engineer been aboard.

The Air Transport Association has suggested that part of the system for an additional flight crew member on all two-engine aircraft may contribute strength in the other areas to establish "interlocking" practices in the industry. Specifically, the Transport Workers Union of America (TWU) told CAB that every conventional plane with four or more engines having long distances should have, in addition to the pilot and copilot, a flight engineer, navigator and radio operator.

**► Compromise Made**—Management representatives asserted that flying the DC-6 as an engine operation then flying the DC-4. Then stopped in inspecting a flight engineer, but the two-man DC-6 cockpit, stating that such a step actually would harm safety.

Most of U. S. carriers having Boeing Stratocruisers in order including American Overseas Airlines, United Air Lines and Pan American Airways, had made provision for carrying a third crew member. But Northwest Airlines, before the CAB hearing, had indicated it would use the Stratocruiser as a two-man plane on some routes.

**► Cost Estimated**—Although United had planned to use a third man in the cockpit, it agreed with Northwest that the Stratocruiser can be flown with a two-man crew. Boeing engineers state that the Stratocruiser is basically a two-man airplane.

The reason not to use the dual pilot has been some airlines believe CAB's flight engineer ruling will cost them. Biggest factor is how long a flight engineer station will be required—only a jump seat between the pilot or the radio seat.

**► Wage Expense**—That the carriers know



## the Birdmen's Perch

by Major Al Williams, ALIAS, "TATTERED WING TIPS,"  
Gulf Aviation Products Manager, Gulf Bldg., Pittsburgh 33, Pa.



Remember the average airline pilot we told you about a few months ago?

We gave you his height, weight, bones, and everything, but the color of the code on his back.

Well, now we can tell you about the average flying doctor, of which 350 are represented in the following figures.

He's 35 years old, or a little older than the usual pilot. He has about 420 hours, and has been flying about 25 months, or a year, or a year and a half.

His plane really works for us fine. He goes more than thirty miles an hour, and he can fly anything from breakfast to shipping trays.

And when you want that as a cockpit as much as the demands of the war, high quality in his aviation petroleum products (meaning Gulf Aviation Products) as he does in his own petroleum products (meaning Gulf Fuel Addit).

### WHAT AND WHY

Once upon a time, people were so impressed by the fact that airplanes flew that they didn't notice much else about them.

Today, when some people are much more interested in what is inside the cockpit, they're concerned to know much more about the way they can get out of it, how much more work they can get done with one, how much it will pay for itself.

Some thing with oil.

There was probably a time when people were so impressed by the fact that oil lubricated that they didn't notice much else about it.

Today, they're darn cautious to know what the oil does when it lubricates. They're concerned to know much more about the way they can get out of it, how much more work they can get done with one, how much it will pay for itself.

That's why we keep telling you about the Aftabur Bros., the main selling step that covers an area 136 of non-lubricating equipment for an already successful oil... to make Gulfair Oil.

Because once you try Gulfair Oil in your own engine, you'll have a lot of proof that it lubricates better and longer and cheaper.

### NO NAME DEPT.

The mail is about 30-50.

Half the letters you keep the Little Known Facts Dept., the other half we'll be glad to forward to the Flying Guy. Most of the original suggestions, such as "Service Hints For Maintenance Shops," would be more interesting to the pilot who

operates them than to the whole gang of Peck Poles.

You'll just have to keep up the requests until we get a better idea of what you want, guys.

Meanwhile, will you skywriters who are building out the Peck Poles or Gopher Dept. also sending your Peck Poles to?

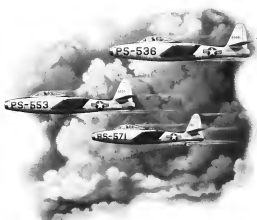


Can't be a Peck Pole Dept. without Peck Poles, can they?

Unfold all your flying lines (Gopher Dept.) and you'll find considerably above in having more than all your lines, as well as all in having more, more more more for the Peck.

Gulf Oil Corporation and Gulf Refining Company... makers of





## PROVEN IN SERVICE...

Worthy successor to the mighty THUNDERBOLT... the new P-47 THUNDERBOLT now being flown by two famous groups of the U.S.A.F.... the 74th, based at Dow Air Force Base, Bangor, Me., and the 29th of Slow Air Force Base, Sumter, S. C., are daily demonstrating the high efficiency of this, the latest jet fighter on active service. ☐ Soon other groups will be equipped with this 600 MPH THUNDERBOLT. We are indeed gratified that the close co-operation between the U.S.A.F. and REPUBLIC's skilled design and production personnel has resulted in the development of another great combat plane for the security and protection of our nation. REPUBLIC AVIATION CORP., FARMINGDALE, L. I., N. Y.

"This is the Year of the Thunderjet"



REPUBLIC AVIATION

Makers of the Mighty Thunderbolt • Thunderjet • XF-12



### Lightweight Transport Readied for Testing

Auto Design & Engineering Corp.'s light transport Auto Commander has been revealed to public view at the Colver City, Calif., plant and is scheduled for early test flight. It has seating capacity up to seven, with gross weight varying from 1800 to 4000 lb. At the highest figure, its useful load would be approximately 1900 lb. Weight empty is slightly over 2400 lb.

Powered by two 150-horsepower 200 hp engines, its designed cruising speed is 185 mph at sea level; 180 at 43 ft and length 32 ft.

After about ten hours of testing, the company intends to enter CAA certification tests. With a price tag from \$18,000 to \$25,000 depending upon interior arrangement, the company claims that its firm orders will be deposited within six months of the first date of the showing.

In above photo, President T. R. Smith, former Douglas Aircraft engineer, stands beside nose of the Commander. Paul Loumas, secretary treasurer, is in the pilot seat. (A.U. Schmidt photo)

### Consolidate Maintenance

Maintenance and related functions of Challenger Airline have been shifted from Salt Lake City and are being consolidated with those of Monarch Air Lines, Denver.

Challenger and Monarch previously had consolidated their traffic and scheduling departments (Aeronautics Week, Mar. 15). Challenger President Donald A. Duff and the latter now does not account a merger of the two companies. Each carrier will retain its own corporate identity and financial interests.

Moving Challenger's maintenance division to Denver will affect about 40 persons, some of whom will be absorbed into Monarch. Executive and accounting offices will also be headquartered in Denver, but operations headquarters will continue in Salt Lake City.

### Miami Claims Leadership

Miami International Airport claims top spot as the nation's a port of entry and departure for overseas air travelers in 1945.

Figures compiled by the U. S. Immigration and naturalization service disclosed that 426,587 international air passengers went through the city last

year. This was 154,415 more than were cleared through New York-Miami's closest rival.

About 10,748 international travelers went by way of New Orleans, and the combined airports of Los Angeles and San Francisco listed by more than 30,000 each. Breakdown of the Miami figure revealed that 216,296 passengers came aboard and 210,291 departed

### 1948 'Skycruise' Season

Robert Arlson, Southern Piedmont, N. C., summer operator of all-weather air train, plans to offer its Skycruise again this summer.

The carrier has requested a CAA inspection to conduct eight "packaged" cruises distributed through June, July, August and September. An exemption (tender to sea granted last year) is being sought because of the possibility that the flight frequency and regularity would conflict with CAA's stringent scheduled regulations.

Routes plans to charge around \$800 for a 28-day tour during the summer. York (with four pickups at Cleveland and Chicago) and visiting San Valley, Glacier National Park, Bear Lake, Lake Louise, Seattle, Vancouver, San Francisco, Yosemite National Park, Las Vegas, Los Angeles, California, Grand Canyon and Colorado Springs. Two-week Skycruises would be offered in the 1949 price range.

The company has been operating all-weather tour since June, 1946. It has a certificate application pending before CAA.



### EAL SIGN POST

"Trip indicators" consisting of special metal sign assemblies mounted on the machine and dual destination of all flights have been installed by Eastern Air Lines on landing platforms at airports and throughout its routes. The new signs, which are particularly useful in preventing confusion at busy terminals, are mounted on the right side of the leading platform. Eastern Air Lines City personnel are shown working at EAL. Consolidation on flight 605 for Miami.

## PAA MAKES FUR FLY

### Airline Group Appointed To Work With Military

Major Lawrence S. Kater, commander of the Military Air Transport Service, has been designated by Defense Secretary James Forrestal to take charge of preparing plans for utilizing airfield facilities during an emergency. Other members of the military group are: Gen. William K. Harrison, Chief, Wing; Gen. Milton W. Arnold, A-1A co-pilot; president operations, and transportation. Other members of the group are: John A. Collins, TWA, Inc., president operations; United Air Lines Vice President; R. W. Inland, Lugh C. Parker, co-pilot; traffic for Delta Air Lines; American Airlines, Board Chairman; C. R. Smith, Eastern Airlines, President; and President John T. Ryan.

Alaska Airlines has had two important passenger-carrying contracts during the first part of 1948. One is with the U. S. Army, and involves the transportation of Army dependents from Seattle to Tokyo. That agreement began early in February, and is expected to continue through Apr. 30. The carrier also had a contract to carry passengers

[illegible]

ARMSTRONG SIDDELEY MOTORS LIMITED, PARKSIDE, COVENTRY, ENG.









# EDITORIAL

## National Defense Catechism

**Question:** In Washington it was said frequently last week that in England a cabinet officer would scribble his national policy notes while down in discussion as Churchill's 154 Group Air Force program is discussed in the House of Representatives. Do you think he will scribble?

**Answer:** This is the U.S., not England. This kind of gossip is typical of questions and therefore talk. Washingtonians laugh about it. We don't think Churchill will scribble or be fired.

**Question:** A spokesman called President Truman at a press conference, if Air Force Secretary Swingenon would be quoted for taking issue with his boss for demanding a 70-Group Air Force. Do you think Swingenon will comply or be fired?

**Answer:** Neither. The Air Force asked for 70 Groups in its 1947 and 1949 fiscal year. The 70-Group idea originated before Swingenon ever went to the War Dept. Now did Mr. Swingenon do any public propaganda before he went to the President's Air Policy Committee. However, no one could expect a Secretary of the Air Force to replicate an Air Force policy of several years standing under close questioning of House and Senate Armed Services Committees.

"For three years the Air Force has tried to get a minimum 70-Group program," Mr. Swingenon told the House Armed Services Committee April 13. "The President appointed a committee which studied a good many methods the public and some sort of a report recommending exactly the program . . . Gen. Spaatz said I decided before that Committee. We finished under oath."

"When we heard that the Administration was not going to support the 70-Group program, I went to see chief Mr. Farnsworth and I asked him if he did not think it advisable for us to maintain the position we took last fall before the Peelle Committee, when the world situation was far different than it is today. In his typically fair fashion, Mr. Farnsworth said, 'While, of course, that the thing for us to do when we were before these committees and were asked questions was to tell what we thought was right.'"

"We don't believe the President of the United States or his Secretary of National Defense would dare to force a Secretary of the Air Force whose program was passed seven times by both the House and Senate, in the House of Representatives. The independence of the American people has never been better reflected."

**Question:** Will the House vote on the 70-Group program this year?

**Answer:** Transcendent. The Truman Administration and the battle-hardened chiefs of Staff are locked, but they don't know it yet. We expect a showdown among the Joint Chiefs of Staff, even before election day, which means a new outlook on air power by the Truman Administration.

**Question:** Has Secretary Farnsworth lost prestige?

**Answer:** No doubt of it. But few blame him. His reputation is still high in Washington, but he received bad advice because he is surrounded by a pro-Navy staff. A battle-hardened Joint Chiefs of Staff, and a chief in the White House who was told the same old of goals in the same never circle.

**Question:** Why have so many writers failed to tell the people during the current controversy that the Army Navy program is talking about a mobilization force, while the 70-Group Air Force has never been intended as anything but an adequate peace-time force?

**Answer:** We can't blame it. Not Secretary Swingenon on April 13 and:

"I might add that the Air Force that we are asking today is no more an Air Force added to the rest of increased tension in the world. It is the same Air Force, with the exception of some additional people—50,000 for the year 1949, on the average—that was asked for by Gen. Eisenhower and Gen. Spaatz three years ago, long before the world situation was in any condition like this."

**Question:** Will the Senate vote the 70-Group Air Force?

**Answer:** We feel sure it will. Sen. Bridges, chairman of the Senate Appropriations Committee, was swamped by criticism over the weekend after he released a press statement indicating he would move slowly on legislation for a 70-Group force. On Monday he was compelled to leave another statement promising "full speed" in granting funds as soon as the bill reached his committee.

**Question:** Is Swingenon anti-Navy and anti-Air Force?

**Answer:** On April 13 he told Congressmen: "I think we are not only ought to have the 70-Group Air Force but also the right Army and the right Navy . . . It seems to me that we could never have an Army as big as the Russian army, which we understand is well over 300 divisions . . . from the standpoint of the Navy, we know we have the greatest Navy in the world, greater than all the other navies in the world put together."

**Question:** Is Swingenon anti-UNR?

**Answer:** The Air Force Secretary told the House Committee that he and the Air Force are in agreement with the Congress report, which said that if UNR had to be at the expense of the military services then not only would not be at it, this would be against it.

**Question:** Has Swingenon failed?

**Answer:** We don't think so. What has failed is the Administration's gag rule, which sought to prevent free and open discussion of legitimate differences of opinion.

—SCOTT H. WOOD



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